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RECENT ADVANCES IN THE STUDY OF TUBERCULOSIS.

By Wm. Royal Stokes, M.D.,
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THE ancient belief in the hereditary transmission of tuberculosis, based upon the common observation of its occurrence in successive generations of affected families, has, since the demonstration of the specific bacillus, been accounted for by two distinct theories.

The first theory assumes that the patient inherits a certain predisposition, or favorable soil, which, when exposed, receives and propagates the bacillus with extraordinary readiness.

The second theory is based upon the supposition that the bacillus of tuberculosis is itself inherited by the children of tuberculous parents, either through the mother by infection of the ovum or the placenta, or from the father by seminal infection.

The inheritance of the bacilli themselves is supported by a number of facts. In the first place, seminal infection causes such hereditary infectious diseases as pebrine in the silk worm, syphilis and solitary tubercles of the brain in man. Some cases of joint and bone tuberculosis can hardly be accounted for except by actual parental transmission of the germ.

Tubercle bacilli have been demonstrated in the testicles and semen of men and animals. Nakarai (8) has found these germs in the healthy testicles and seminal vesicles of tuberculous persons, and was able to infect animals with tuberculosis by means of the semen and testicular juice of these cases. Tuberculous lesions have also been found in the fetus and new-born offspring of human beings and of animals. The inheritance of tubercle bacilli has also been caused in the young of female rabbits, guinea pigs and mice artificially infected with these bacilli, and chickens hatched from eggs inoculated with the tubercle bacillus have died of tuberculosis.

G. Hauser (1), who has published a very thorough study on the subject of the inheritance of tuberculosis, and who has carefully

reviewed all of the cases bearing on this subject, came to the following conclusions:

Although he believes that tuberculosis can be inherited from the mother in man and animals, especially through the placental circulation, he has not yet found a single convincing case of inheritance of the bacilli from the father, notwithstanding the fact that tubercle bacilli have frequently been found in the semen. Gärtner also failed to find any proof of this theory. He inoculated the testes of rabbits and guinea pigs with tubercle bacilli, but failed to find any cases of tuberculosis in the offspring. Binghi (9) also introduced tubercle bacilli into the testicles of guinea pigs, but their offspring did not develop the disease. Inherited tuberculosis from the mother only occurs in 10 per cent. of the children, even when the maternal infections are severe and fatal.

Hauser does not think that the evidence which he has collected lends very great support to the so-called bacillary inheritance of tuberculosis. In the first place, while the occurrence of tuberculosis in the offspring from tuberculous mothers can be explained, the equal prevalence of a so-called inherited tuberculosis from the male parent remains unsupported and unexplained by experiments on animals. Even in severe tuberculosis of the mother the transference of tubercle bacilli to the offspring has been demonstrated in a much smaller percentage of cases than the actual occurrence of tuberculosis in the children of tuberculous mothers.

In the second place, in fetal and congenital tuberculosis the lesions are almost always found in the liver and portal lymph glands, while primary tuberculosis of the liver in later life is very rare, and primary lymphatic tuberculosis usually affects the glands of the neck.

In the third place, tuberculosis frequently skips an entire generation, and Hauser does not think that this is sufficiently explained by Baumgarten's assumption that the inherited bacilli may remain latent for a generation or two, only to manifest themselves in the second or third series of descendants.

The study of pebrine, and the infection of fowls' and birds' eggs with bacilli, cannot logically be regarded as analogous to the infection of mammals, since the embryonic development is not the same.

If we can account for primary lymphatic, joint and cerebral tuberculosis only by inheritance of the bacilli, then we must also believe that many cases of primary brain abscess, osteomyelitis and epidemic cerebro-spinal meningitis are due to intrauterine infection. Then, too, so-called inherited tuberculosis often does not make its appearance until after puberty, and we must assume that the tissues show a greater resistance towards these special germs during a period when they are most susceptible to other bacteria.

Believing that former opinions on this subject had been formed upon observations or experiments made on severe general and fatal cases, while problems of inheritance more frequently involve

the transmission of tuberculosis from mild or localized cases, this investigator endeavored to reproduce the existing conditions as nearly as possible by a series of experiments upon rabbits and guinea pigs. In order to localize the disease, he injected a very dilute suspension of tubercle bacilli into the apex of the rabbit's lungs, thus producing a disease limited to the lungs. In guinea pigs the same result was obtained by injecting the bacilli into the pleural cavity. Both male and female animals were inoculated, and after they had developed tuberculosis they were allowed to breed, in order to see whether any tuberculous offspring would result. Twelve rabbits were produced from parents both of whom were tuberculous, fourteen guinea pigs were produced by healthy mothers from tuberculous fathers, and four guinea pigs were born of tuberculous mothers by healthy fathers.

Eight of these thirty animals died in from one to sixty-three days, but neither by anatomical nor bacteriological methods could any traces of tuberculosis be found. The other twenty-two animals lived from four to thirty-two months without showing any signs of tuberculous infection, although careful autopsies were made of every animal. This painstaking investigation did not demonstrate a single instance of hereditary tuberculosis.

In order to further test Baumgarten's theory that the bacilli may remain latent for a generation and break out afresh in the third generation, he bred a portion of the stock raised from the animals originally inoculated. The animals thus produced represented the second generation from tuberculous parents, but not one of them developed tuberculosis.

Although inherited tuberculosis may occur, it has not been proven to be a frequent method of transmission of the disease. Certainly both the arguments advanced by Hauser and the consideration of the recorded cases and experiments are against Baumgarten's extreme views, that most serious cases of tuberculosis are caused by a direct inheritance of the bacilli, while the inhalation or swallowing of tubercle bacilli cause tuberculosis which usually heals and gives little trouble.

While cases of actual hereditary transmission are probably rare, the special susceptibility of the tissues towards tubercle bacilli is a condition which can be inherited just as various other characteristics—strength, size, features, resisting power and various mental and physical idiosyncracies—are inherited.

Certain persons or families are thus more easily infected with tuberculosis than others, but the infectious agent is almost invariably introduced from without.

THE INHALATION OF INFECTED AIR.

Although it had long been held that many cases of tuberculosis occurred through the inhalation of air containing the germs of consumption, yet it has taken a long series of experiments to give this idea proper scientific support and correct scientific statements.

Neisser (5) proved that dried tubercle bacilli can be transported from place to place in mild currents of air. By first mixing the bacilli with sterilized fine dust, and then directing a gentle current of air upon this mixture, the living germs were carried to distant points. He concluded that dried tubercle bacilli can be held for some time in the suspended dust of ordinary rooms. This observation gave wide currency to the idea that dried sputum was the most dangerous source of infection. Following this, a number of attempts were made to produce tuberculosis in animals by the inhalation of dried tubercle bacilli and tuberculous sputum, but these attempts usually failed unless the respiratory organs were previously injured by mechanical or chemical means, or unless the finely-powdered dust was blown into the animals' faces by a very strong current of air.

Koch produced tuberculosis in rabbits, guinea pigs and mice by causing them to inhale a watery suspension of the bacilli, and Gerhardt (6) and Lachscheimer obtained similar results in guinea pigs by causing them to inhale a fine mist of tuberculous sputum from a spraying bottle.

It will be seen, however, that the material used in these experiments was in a moist condition, and in Gerhardt's experiments, particularly, the germs were in a very favorable condition, having come directly from the sputum of tuberculous patients.

These experiments have probably given a proper direction to the rest of the work on this subject, and the experimental evidence at present all points to virulent tubercle bacilli coming rather directly from tuberculous patients as the chief source of danger to healthy persons.

C. Flugge (2) has performed a number of experiments, which throw a great deal of light upon the process of lung infection by infected air. This investigator has shown that fluids impregnated with bacteria can be divided into minute drops by means of a spray, and that these drops will float about in the air for about five hours, being very easily wafted about by very mild currents of air.

He experimented in a room by directing currents of air on the finely-divided spray of a fluid containing the bacillus prodigiosus, and he found that, even after six or seven hours, mild currents of air could be made to deposit these germs in agar plates in all parts of the room. He considers the fine spray containing moist germs, which a tuberculous patient throws out in coughing, speaking or sneezing, as the most important source of infection to exposed persons, as the bacilli are then fresh and virulent.

These experiments and conclusions have been confirmed by other observers.

Engelman (3) placed glass slides at various distances from tuberculous patients and then caused them to cough gently. He found that he could stain tubercle bacilli on slides at a distance of one meter from the patient. He worked with eight different patients.

Heymann (11) repeated these experiments, and measured the

tiny drops after they had fallen on the slides. Their average diameter was about thirty-five micromillimeters, and under the microscope they consisted of mucous, pus cells, epithelial cells and many tubercle bacilli.

Weismayr caused a number of persons to rinse out their mouths with fluid cultures of the bacillus prodigiosus, and then to cough. He found that in the quiet air of a closed room germs were thus projected forward for a distance of four meters, while if a door was opened and shut they spread two meters behind and to the side of the person coughing. Spitting also distributed the germs for some distance.

Hubener (4) repeated these experiments, and found that loud talking, sneezing and coughing would project these germs, often as many as 500 being found in agar plates five meters from the operator. By placing a mask over the mouth and nose it was found that the germs were arrested, all the plates being found sterile.

ANTITUBERCULOUS SERUM.

The discovery by Koch of tuberculin, a toxic product of the bacillus of tuberculosis, at once set many investigators to searching for some antidote to this poison. Although the use of Koch's tuberculin has not been of benefit in the treatment of consumption, yet its injection into large animals has produced an antitoxic serum which, it is claimed, prolongs the lives of inoculated animals.

The old crude tuberculin was simply a glycerin extract of six weeks' old fluid cultures of the tubercle bacillus, evaporated to one-tenth of its original bulk, but Koch has recently refined this product by reducing the bacilli to fragments in a mortar and then centrifugalizing the sediment. This sediment is called T. R., and has a powerful effect upon animals, causing a rise of temperature if they are tuberculous.

De Schweinitz (7) has recently isolated two interesting substances from the tubercle bacillus. One he calls a temperature-reducing acid, which he obtains in ether or alcohol solutions from a special liquid medium. This acid separates from the solution in needle-like crystals, and when injected into guinea pigs it causes the typical coagulation necrosis of tuberculosis. It has the formula of an acid of the fatty series called teraconic acid.

The second substance, or fever-producing principle, is an albuminoid, which is extracted from the bacilli by hot water after removal of the previously mentioned acid principle. This substance causes in guinea pigs and calves the rise of temperature typical of tuberculosis. These are the important products of the tubercle bacillus so far discovered.

Koch (12) found, after a long series of experiments, that his refined product from the tubercle bacillus would, if used in small doses, exert an immunizing effect in experimental tuberculosis of guinea pigs.

De Schweinitz has also performed a number of experiments

confirming this result. He used cultures of the tubercle bacillus which had been attenuated by prolonged growth of about twenty generations on artificial culture media, but he found that the guinea pigs would not usually develop tuberculosis. He then protected four guinea pigs by the inoculation of an attenuated culture, and in about two months he inoculated them with a virulent culture directly from a tuberculous gland. These animals were all well at the end of four months, while the five control animals simply injected with the virulent culture all died of tuberculosis in about six weeks.

Maffucci and Di Vestra (13) have lately endeavored to produce an antitoxic serum which would also act as a prophylactic against experimental tuberculosis. They used either old bacilli or organisms killed by exposure to 100° C., or by formalin, and injected these in gradually-increasing doses into four sheep and four calves (.2 to 5 grams). Although they inoculated a large number of guinea pigs with a mixture of one part of tubercle bacilli to ten of the serum, all of the animals died of tuberculosis. Rabbits gave similar results. They concluded that they had been unable to produce a serum which had any effect upon experimental tuberculosis.

Nieman of Berlin has produced a serum by injecting goats with tuberculin, and he claims that 1.5 cc. of this goat serum will protect 30-day tuberculous guinea pigs against double the fatal dose of tuberculin, and he even claims to have cured experimental tuberculosis of guinea pigs.

De Schweinitz (7) has produced an antituberculous serum which has apparently achieved some good results. This serum was used in combination with general hygienic and climatic treatment, and although somewhat promising, leaves much to be desired.

This serum is prepared by abstracting the contents of the tubercle bacillus by active agitation in a milk-shake machine with a special solvent.

This germ extract is injected into the tissues of horses. This is continued, and the dose increased until the serum of the horse is found to possess some peculiar properties. It prevents the tuberculin reaction in tuberculous guinea pigs, and also prolongs the lives of healthy animals when subsequently infected with the germ of tuberculosis. This product was used on human beings at Dr. Trudeau's sanitarium in thirty-four cases, and thirty of these cases showed improvement, decrease of cough, expectoration, fever and bacilli, and a few were apparently cured. Other observers have had similar results, but numerous cases were not benefited by this treatment.

SANITARIUM TREATMENT.

At the recent Congress for the Control of Tuberculosis, held at Berlin, all the discussions led towards and culminated in a hearty endorsement of the hygienic-dietetic or sanitarium treatment of consumption. Von Leyden said that the fight against tubercu-

losis is primarily a campaign of popular education, and hoped that the discussions would receive the widest possible publicity. He alluded to the noteworthy development of the sanitarium idea during recent years in Germany, England, Austria, France, Russia, America, Spain, Switzerland and Sweden. Landesrat Meyer spoke of the great value of the hygienic-dietetic treatment of tuberculosis in sanitaria. Private philanthropy is by no means adequate to so great a problem as tuberculosis presents, but must be supplemented by municipal and State support. Next after the humanitarian aspect of the subject he placed the economic burdens laid upon society in the large contributions made by tuberculosis to the dependent classes, and the material losses devolving upon employers of labor, upon sickness and age-insurers and trades-unions, through prolonged invalidism and reduced earning power.

Friedeberg said that in industrial occupations nearly half the mortality and more than half the invalidism was due to tuberculosis. Before the introduction of the hygienic-dietetic treatment the maintenance of a tuberculous patient cost annually from 700 to 2400 marks. Consumptives are seldom financially able to make a struggle against their malady, and must, when scattered among the homes of the people, be supported at excessive cost.

Schmieden spoke of the construction of sanitaria, saying that they should be protected from high winds and should have the greatest possible exposure to the sun. No factories emitting smoke, dust or odors should be in the vicinity. Each bed should have air space of at least thirty cubic meters, and one or two meters of floor space between beds. A well-equipped laboratory should be attached to every sanitarium.

Schultzen, after describing sanitaria on the pavilion plan, said that the total cost of maintaining a 110-bed sanitarium of this sort would be about three marks per bed per diem.

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13. Centralblatt f. Bakt. u. Infektionskrankheiten, Erste Abt., Bd. XXV, No. 23, S. 809.
14. Idem. No. 25, S. 924.

THE HOME TREATMENT OF CONSUMPTION.

By William Osler, M.D.,

Professor of Medicine, Johns Hopkins University, Baltimore.

READ AT THE SEMI-ANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND AT WESTMINSTER, NOV. 14TH, 1899.

In the city, from the country or from small towns, I not infrequently see persons with pulmonary tuberculosis whose circumstances are such that change of climate or life in a sanitarium is out of the question; and when we reflect for a moment on the enormous number of cases of phthisis and the trifling accommodation offered in sanitaria, the practical problem which confronts us is, how best to treat the 95 per cent. of cases necessarily confined to their homes. Cannot these poor victims reap some benefit from the recent experience of the profession?

The usual surroundings of a consumptive are only too well known to all of us. In a majority of cases the treatment is desultory, unsystematic and directed to symptoms alone. It is not too sweeping an assertion to say that of the 8000 or 10,000 cases of consumption in the city of Baltimore today, few live under a definite regime. Last spring I saw in rapid succession two cases which impressed upon me forcibly the familiar fact that our theoretical knowledge of this disease has, as is so often the case, not reached a practical working basis. In a small house in South Baltimore I saw a young man, aged eighteen (one of five children), who had had tuberculosis for at least nine months. Nothing could have been more unfavorable than his surroundings, though the people were of the mechanic class, and of good intelligence. The room was stuffy, ill-ventilated, with both windows closely shut, and the temperature of the room, heated by a small stove, was nearly 80°. He had been in bed for at least three months, with much cough and a great deal of expectoration, some of which was visible on the floor, as it did not always reach the spittoon. He had high fever, loss of appetite, and was being fed on panopeptone and beef extracts. The room had a good exposure, and I suggested to the young man to have the bed moved to the window, to be well covered up, and to rest in the sunshine during part of every day. The reply was that it would kill him, and I could see by the mother's looks that she was of the same opinion. The doctor, too, I am afraid, regarded me as a fanatic. In the same week I saw a similar picture in a different setting, a young girl, who had been in bed for many weeks, with high, irregular fever and a rapidly-progressing disease. I could see that the suggestion of an open-air course of treatment was extremely distasteful, but she was induced to go to the Adirondacks, where she has done very well.

Arrest or cure of tuberculosis is a question entirely of nutrition,

and the essential factor is so to improve the resisting forces of the body that the bacilli cannot make further progress, but are so hemmed in that they are either prevented effectually from breaking through the entrenchments, or, in rare cases, they are forced to capitulate and are put to the sword. Of the measures by which the general nutrition of the body may be encouraged and improved, the first and most important is:

Fresh Air.—For more than two centuries the clearer-headed members of the profession have known that an open-air life sometimes cures a case of phthisis. One of the earliest and most interesting cases of this kind is reported by John Locke, the philosopher, in his "Anecdota Sydenhamiana." "Mr. Lawrence, Dr. Sydenham's Nephew after a fever fell into a Cough, & other signs of an incipient Phthisis, (the Morbific matter being violently translated in upon his Lungs) and at length the Diarrhoea colliquativa came on: then ye Dr sent him into ye Country on Horseback, (tho he was soe weak yt he could hardly walk) & ordered him to ride 6 or 7 miles ye first day, (wch he did) and to encrease dayly his Iourney as he shd be able, untill he had rid 150 miles: When he had travelld half ye way his Diarrhoea stopt, & at last he came to ye end of his Iourney, & was pretty well (at least somewhat better) & had a good appetite; but when he had staid at his Sister's house some 4 or 5 days his Diarrhoea came on again; the Dr had ordered him not to stay above 2 days at most; for iff they stay before they are recovered this spoils all again; & therefore he betook himself to his riding again, and in 4 days came up to London perfectly cur'd. The same course hath ye Dr put others upon, especially in Pulmonick Diseases, & wth ye like Success when all things elce had faild him: & he was not ashamed to own yt he was fain to borrow a cure from this way now & then when he found himself puzzled with some lingering Distemper not reducible to a common & known (sic) Disease."

This reminds one of Dr. H. I. Bowditch's description of the ride which did him so much good when as a young man he was supposed to have lung trouble.

The quality of the fresh air in our large cities may not be very good, but it is the best a large proportion of our patients can possibly get to breathe, and it is a great deal better than the atmosphere of the overheated, ill-ventilated rooms in which a majority of them live.

I give the following directions: Take the almanac and count off the hours of sunshine. In winter cut off two hours in the morning and an hour in the evening, and for the rest of the day the patient is to be out of doors. If there is no possible arrangement for life out of doors, the patient is to be in a room with a southern exposure with the windows wide open. The bed is to be moved into the sunshine. If there is a balcony or a veranda with a good outlook towards the south, it should be arranged for the patient; if not, a sheltered protection can be put up in the yard at a very moderate cost. On a well-padded lounge, covered with a couple

of thick blankets, well wrapped up, the patient sits or reclines all day, coming in only to attend to the calls of nature. Only on blustering, stormy or very rainy days is the patient to remain in the house. No degree of cold is a contraindication. This continuous open-air life, at rest, is the most powerful influence we possess today against the fever of tuberculosis. It may take a month, it may take two or even three months before the temperature reaches normal, but it has been one of the many valuable lessons which we have learned from Dr. Trudeau, that in the fever of consumption the patient should not only be out of doors, but at rest, taking no exercise. The bedroom of the patient should be thoroughly ventilated, and the patient should be accustomed gradually to sleep with the window open.

Secondly, *Food.*—The stomach controls the situation in pulmonary tuberculosis. In any long series of cases the patients who do well are those who can take plenty of food. An important cause of the lack of appetite and feeble digestion is the persistent fever, and we often find that as the temperature falls the appetite improves. It is easy to lay down rules; very hard to carry them out. Each case must be dealt with separately, but as large a quantity of food as possible should be given. Overfeeding or stuffing, when possible, should be practised, and the patient should be encouraged to pay as little attention to his subjective gastric sensations as possible. We rarely can carry out the autocratic, cast-iron method followed at Nordrach, which insists that a patient who has vomited a meal shall, *nolens volens*, eat another very shortly of the same character. For some time I have been urging the patients to accustom themselves to taking raw eggs, beginning with one three times a day, and increasing one a week until they took, if possible, twenty or twenty-four daily. For the hyperalimentation this is probably the simplest and most satisfactory diet. It has been carried out with marked success by Dr. Ely of Rochester, who literally prescribes eggs by the dozen. Broken into the egg-cup, sprinkled with a little pepper and salt, the egg can be readily swallowed without breaking the yolk. It is most important to get the patient accustomed to taking the natural foods. Milk and cream and butter, meat and eggs and oysters should constitute the main part of the diet.

The medicinal treatment of cases may be divided into—first, the use of stomachics, bitter tonics and certain digestives; secondly, remedies such as codliver oil, hypophosphites and creasote, the benefits of which are chiefly in promoting general nutrition, and, thirdly, remedies for the relief of certain symptoms, as cough, pain, night sweats, etc.

In December last a young woman came to me from one of the towns in the State with well-marked tuberculosis. Her grandmother and two of her father's brothers had died of consumption. She had a cough off and on for three years, and for more than a year she had a great deal of fever, had lost very much in weight and had had profuse night sweats. She never had had any vomiting.

When I saw her she had high fever (temperature 103°), and there were signs of extensive disease at the right apex—flattening dullness on percussion with resonant rales as low as the fourth rib. There were signs of involvement of the right apex behind, and there were a few crackling rales at the apex of the lower lobe on the left side behind. She was short of breath, and looked thin and pale. Her weight was 109 pounds. I gave her directions such as I have indicated, and she has given me a brief statement in her own words of her progress in the eleven months. She writes as follows (November 10): "When I begun treatment the first day I sat out was December 11, 1898; don't know just how cold it was, but could see the river from our porch and they were skating. In winter usually had breakfast about 8 and went outdoors about 9. When I begun was not well enough to walk much, was so short of breath; after sitting out for some weeks would walk up and down porch an hour before sitting down. I spent a good deal of my time reading; became so interested in my book at times forgot how cold it was. The first two weeks I took three eggs a day, one at 10 A. M., another at 3 and another before going to bed; then six a day, two at a time, and continued to increase till I got up to fifteen a day; continued that number for two months or more, then took twelve a day for three months, then nine. For breakfast I had oatmeal and cream and toast, or small piece of beefsteak and coffee; dinner at 12, drank one glass of milk and ate anything that was on the table in the line of meats or vegetables (provided I liked them); seldom if ever eat desserts. Went out immediately after dinner and remained there until sundown; more eggs at 3 and supper at 6; another glass of milk, and with that a small piece of meat, as a rule, and bread. Eggs again at 9, and go to bed between 9 and 10. Was sitting out one day when the thermometer registered 10° below zero. When it felt like snow or rain remained indoors. I kept this up till the weather was warm and then went driving, took eggs along and stayed out in country till dinner time; drove out again late in evening, and after my return home would sit out till after 10 o'clock. When I begun treatment had bad cough, expectorated a great deal and no appetite. The cough begun to get better, and after about four months I coughed very little; now, so rarely and expectorate so very seldom that it is hardly worth mentioning. When I consulted you last December weighed 109 pounds; now tip the scales at 132 pounds. I have improved steadily and gained in flesh gradually from the above date."

This very practical story illustrates what could be done by many patients. Last spring I happened to be in the town in which this girl lived, and I fortunately thought of her and paid her a visit. She lived in a small two-story house, with a narrow balcony on the first story behind, and here at half-past eleven one morning I found her carefully wrapped up. She looked a different girl, and the report indicates that she has done remarkably well. At the time of my visit she was without fever, but there were still numerous moist rales at the right apex.

Since writing the above I have seen this patient (December 1), who looks remarkably well, has a good color, is free from fever, has no cough, no expectoration and weighs 133 pounds. Luckily I dictated a note on the condition of the lung at the time of her first visit, otherwise I should not have believed the extent of the change. The resonance is still impaired, the flattening is marked beneath the right clavicle, the breath sounds are harsh, the expiration prolonged, but there are only a few dry crackling rales on coughing or on deep breathing. There were no signs at the apex of the lower lobe of the left lung behind.

Two additional points of interest may be mentioned. She has not had a doctor, and she has not had a dose of medicine except an occasional dose of paregoric for the cough. She took creasote for a short time, but afterwards gave it up. Shortly before she visited me her physician died, and I did not know, until my visit to her, that she had not been under any professional care. She could not have done better had she been at the Adirondacks under Dr. Trudeau.

A rigid regimen, a life of rules and regulations, a dominant will on the part of the doctor, willing obedience on the part of the patient and friends—these, with the conditions we have discussed, are necessary in the successful treatment of pulmonary tuberculosis.

THE NIGHT-AIR OF NEW ENGLAND IN THE TREATMENT OF CONSUMPTION.

By C. S. Millet, M.D.,

Brockton, Mass.

READ BEFORE THE MEDICAL AND CHIRUGICAL FACULTY OF MARYLAND AT WESTMINSTER, NOVEMBER 14, 1899.

THE New England climate has, I think, a national reputation for insalubrity. Its variability and bleak east winds are commented upon alike by both natives and foreigners, and its faults and peculiarities have been perpetuated in story by Mark Twain's incomparable satire. In this region, within a few miles of the ocean, on a flat, low-lying country, with a clayey subsoil, my resources have been sorely taxed in the search for some way to combat a disease which during the past ten years has caused one-fourth of all the deaths in the community. How at last a little ray of light has been thrown upon the subject, the history of the following cases will, I hope, bring out.

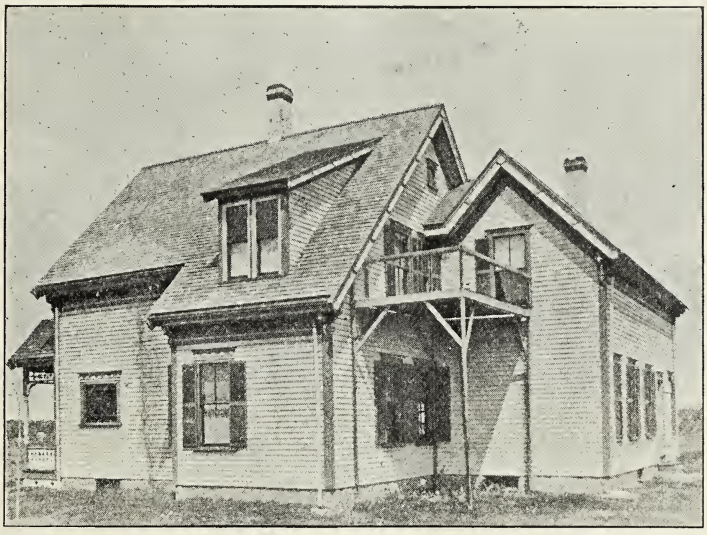
It is now nearly two years since I was called to see a young man whose family history is most remarkable, his brother, father, grandfather, two aunts, one on either side, and an uncle all having died of chronic phthisis. He was suffering from cough, wheezing and dyspnea, and had a temperature of 100.5°. At that time there were no marked physical signs, only diminished respiration over

the left lower lobe, where he had pleurisy or pneumonia years before. Throughout that winter he continued to lose ground, in spite of the remedies ordinarily used in such cases, until in the spring he had lost nearly fifteen pounds, and had become so weak that he could not bring in a hod of coal without extreme shortness of breath.

On May 3, 1898, I took him to see Dr. H. P. Bowditch, whose record of the physical examination made at that time is as follows:

"A sallow and thin man, with dullness in right top to second rib. Lack of proper percussion tone in both apices, and suspicion of a rale in right clavicular space. Temperature 100°. Pulse 84."

Dr. Bowditch's diagnosis was incipient phthisis, and he advised a change of climate unless considerable improvement took place during the next two months. My patient was broken-hearted at the thoughts of leaving home, and the immediate result was a further loss of four or five pounds.



No. 1

About this time I read a brochure by Dr. E. O. Otis of Boston, describing the foreign sanatoria, in which he tells how Detweiler compels his patients to remain out in their reclining chairs until 10 o'clock at night, in order to obtain more fresh air. Feeling convinced that the night time could be far better spent in bed, I urged my patient to try sleeping out of doors. He began the last of June, 1898, and slept with no awning or roof over his head for five consecutive months, with the exception of only nine nights, when rainy weather prevented. Within the first two weeks one could see that he was making progress in the right direction. At the end of a month his temperature was normal, his cough and wheezing

had almost disappeared, and he was apparently on the road to recovery.

At Thanksgiving time, on the day before the great November storm of 1898, when he came into my office, his weight was 144 pounds, he having gained twenty-two pounds in four months. The only medicine which he took was tincture of nux vomica. He has

No. 2

continued perfectly well ever since, and now tips the scales at 147. The photograph shows how he arranged his sleeping-place, so as to obtain a southwest exposure. His home is located about twelve miles from the seacoast, and only 100 feet above the sea-level. This man has worked in a shoe factory nine hours a day without the loss of a day since his treatment began. While sleeping out of doors he wore a soft felt hat and cotton night shirt, and was covered with the ordinary bed clothes. He usually went to bed early, at 9 P. M., because the sun awakened him early in the morning.

The next photograph, No. 2, shows the bedroom, or I should say, bed-platform, of an old man, aged sixty-four, whose disease presented the peculiarity that the physical signs were first heard just underneath the upper part of the sternum. These were principally small, crackling rales. He has slept upon the platform since July, has gained eleven pounds, and shows improvement in every way, although some crepitation can yet be heard. He works in his garden and chops wood for a living.

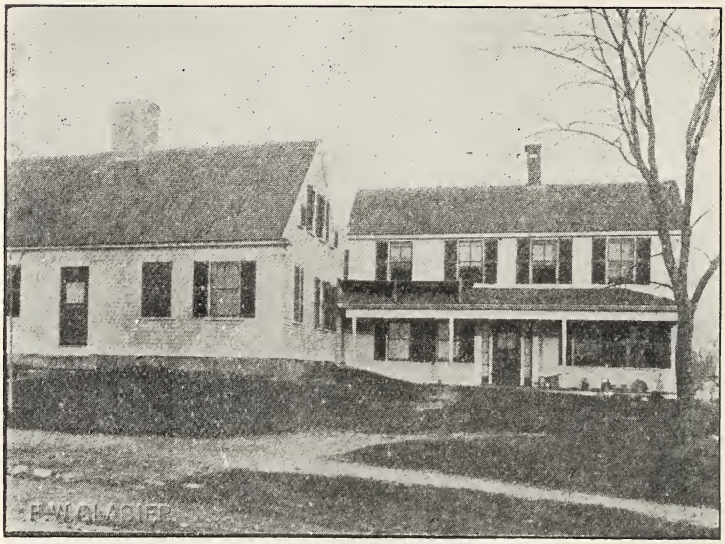
The third picture shows where a boy of twelve has rested during the last six months. A careful consideration of the boy's heredity and environment gave no clew to the probable source of his infection until an autopsy of his father's cow, whose cream he had eaten

to excess all winter, brought to light the fact that she was infected with tuberculosis. The amount of lung tissue involved in this boy's case is too extensive to justify the expectation of permanent arrest, but he has gained nineteen and one-half pounds during the summer. I have, for several reasons, not allowed this boy to attend school. He has felt so well that it has been difficult to restrain him enough to keep his temperature below 99.5°, and in order to do this it has been necessary to put him to bed on his platform almost every afternoon. His mother has slept at night on another cot beside him, and has herself gained very decidedly in weight, strength and color.

No 3

Neither in his case or any other have I insisted on any particular kind of bed clothing. I have simply told them all to keep warm, and in order to do this during the cooler months some of them have found it necessary to use woolen nightgowns and sheets. In regard to diet, the instructions have been to eat all they could of whatever they wanted. Some of the patients have had two baths a day; one has a cold sponge in the morning, and another a tepid bath at night, followed by a good rub. When not at work, they have spent the greater part of the day in the open air.

Photograph No. 4 shows how another of my patients has prepared a place to sleep. The man who lives here had a slight pulmonary hemorrhage last June, and rapidly lost several pounds of flesh. When I saw him on the first of July he only complained of a feeling of weakness and a slight cough, and I thought that he was strong enough to continue at work. An examination of his chest, however, brought to light a small area, slightly solidified,



No. 4

just beneath the left clavicle. At this time he was running a machine in a shoe factory. Attached to this machine was an alcohol lamp, which was used to keep wax in a fluid state, and he was forced to work, winter and summer, with the window in front of his bench closed down tight, for fear of putting out the lamp.

At night he slept on the ground floor, in a small east room, where the windows were so near the bed that he was afraid to open them on account of the draught, so that for at least eighteen out of every twenty-four hours he was completely shut in. I advised him to give up working in the factory and to sleep out of doors. With the help of a little medicine, this treatment brought his weight up to 150 pounds, which is an increase of twelve pounds, and the physical signs have nearly all disappeared. He has an excellent family history, and I cannot help suspecting that his infection came from a person who died of tuberculosis in this same house about fifteen years before.

The platform shown in No. 5 was built for a young man with marked physical signs. He has not used it long enough to show decided improvement, although he is increasing in weight. He spends the greater part of the day, as well as all the night, lying out of doors on his cot. His experience has been like that of all the others—more air, more appetite and less cough.

Not one of these five cases of tuberculosis has taken a single dose of any cough mixture or sedative. Almost the only medicines have been nux vomica and occasionally a laxative. They have all been told to retire early enough to obtain eight hours' sleep.

Two patients who tried this method of obtaining an abundance of fresh air were neurasthenics, with splashing, distended stomachs. One of them had been condemned to die of tuberculosis, and was compelled to give up his work; the other has worked constantly in the factory. To be sure, a restricted diet had much to do with their decided improvement, but they give the chief credit to outdoor sleeping, and are very enthusiastic disciples.

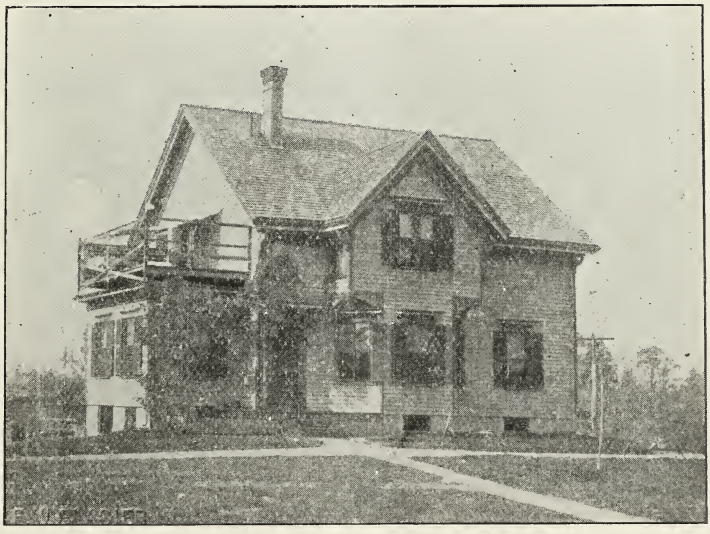
As a matter of experiment I have slept, and am now sleeping, on the roof-garden shown in cut. Until you have tried it yourself you cannot know how much more refreshed one feels after a night's rest out of doors. While my neighbors and my own family were sweltering under a roof last summer, I was delightfully comfortable under a sheet and a blanket.

One word about those cabalistic terms "dampness" and "draughts." They are bugbears, that is all, and need not be considered for a moment. Many times these patients have found their bed coverings and night clothes wet with dew, and once in a while a summer's rain has disturbed their healthful slumbers, but with no harm, beyond the necessity of drying the bed clothes before another bedtime.

I am quite ready to believe that if people could be taught to fear impure air and overheated rooms as they now dread a slight increase of moisture or a little air stirring in the house, tuberculosis would become as infrequent as smallpox.

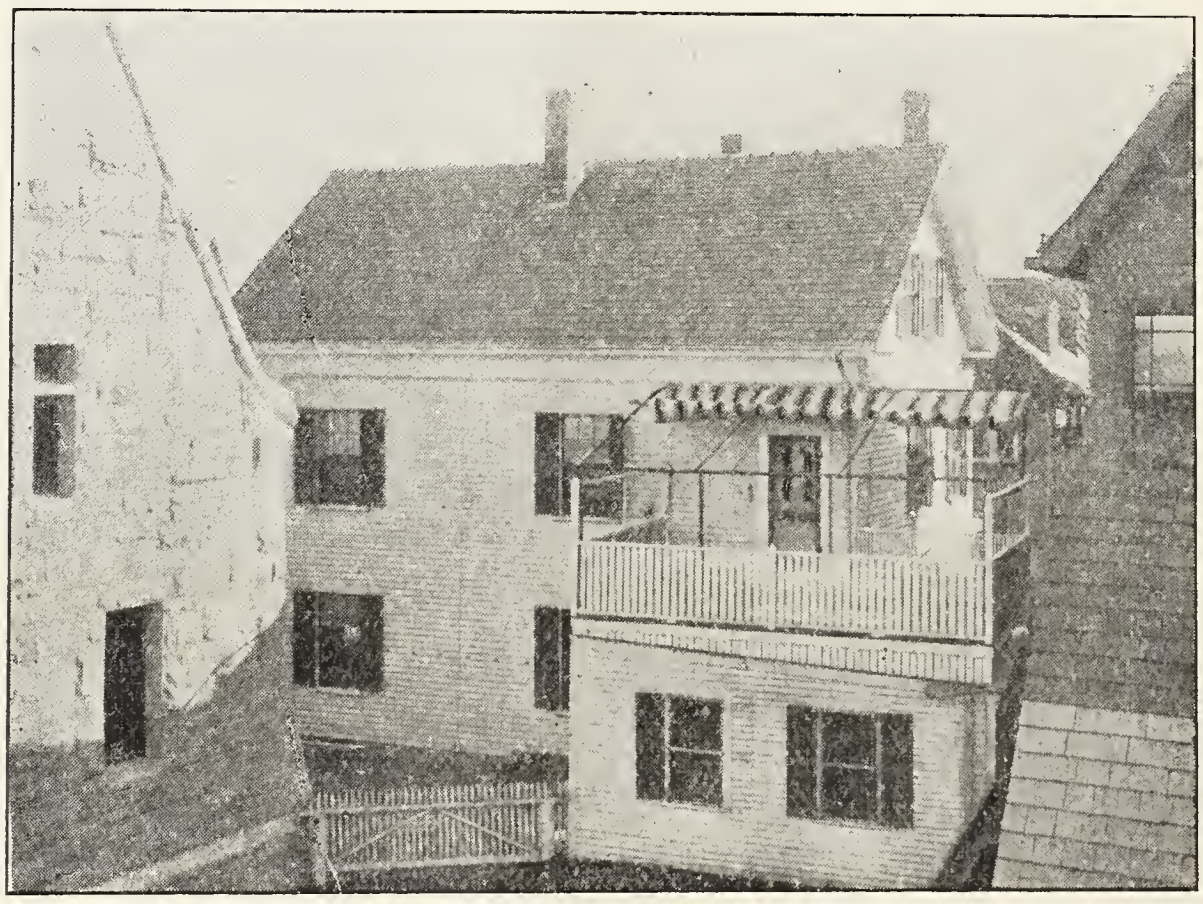
The essentials of the treatment which I have tried to rigidly enforce are as follows:

First.—The patient, having bought a clinical thermometer, is



No. 5

taught how to use it and told to take his own temperature at 9 A. M., 1, 4 and 8 P. M., and to make careful records for the physician's inspection when he makes his visit, which is usually twice a week. The 1 o'clock register, if 99° or below, generally indicates that the patient need not be closely confined to his bed in the afternoon; but the 8 o'clock temperature will decide whether he has taken too much exercise or not. The rule is, rest in bed during the day long enough to keep the temperature below 99.5°, or bet-



No. 6

ter, 99°. I am in the habit of telling these invalids that I don't like 100°, but am encouraged by anything below that. A subnormal temperature is of no importance unless it should be so low in the morning as to indicate a reaction from a much higher rise on the previous evening. The patient who has improved most rapidly, and who uses the platform seen in the picture numbered 4, has almost constantly exhibited a subnormal temperature.

Second.—The patient is instructed to keep a record of the number of hours which he spends in the house, and to give good reasons for not having spent them out of doors.

Third.—He is urged to eat all he can at the three ordinary meals. No hard and fast restrictions are placed upon the diet. Milk, eggs and vegetables are recommended, and the use of pastry and confectionery discouraged.

Fourth.—All those who can spare the time are required to take a cold sponge bath in the morning, and another bath at about 90° before going to bed.

The only other thing to which I have paid particular attention has been the nose and throat.

One of my patients had a septal spur, which hindered nasal breathing, and its removal by a specialist was of great benefit. Enlarged glands at the base of the tongue have been the cause of incessant, irritating cough, and here the galvano cautery has been helpful. So my habit has been to carefully examine the nose and throat, as well as the lungs, and if in doubt to send the patient to a specialist for corroboration of the diagnosis and for operative treatment when necessary.

Current Literature.

INTERNAL MEDICINE,

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

RECENT WORK IN TYPHOID FEVER.

FOR the past six months probably nothing has occupied more of the time and the thought of the majority of physicians than the subject of typhoid fever. It has therefore seemed to us that it might be of interest to briefly review the advances in our knowledge of this disease made within the past few months in regard to its epidemiology, bacteriology, diagnosis, symptomatology, prognosis and therapy.

EPIDEMIOLOGY.—R. Pfeiffer ("Typhus Epidemien und Trinkwasser," *Klinischcs Jahrbuch*, Vol. VII, part 2. Jena: G. Fischer, 1898) adds another to the already impressive list of observations showing the direct dependence of typhoid fever upon drinking water.

The first epidemic studied was that occurring in 1895 in the town of Lüneberg, in which there were 227 cases, with twenty-eight deaths. In previous years there had usually been one or two dozen cases annually.

Pfeiffer showed that 93 per cent. of the 227 cases studied obtained their water supply from unfiltered river water, and it was found on further examination that a few weeks previous to the outbreak a girl had had a typical attack of typhoid just above the place from which the infected water was obtained and on the same bank of the river, and that the feces had been thrown into the river without any attempt at disinfection.

The other epidemic studied occurred at Zehdenick and furnished just as striking a proof as that of Lüneberg.

The importance of flies as bearers of typhoid bacilli and as the cause of typhoid epidemics has received much attention lately, especially by American physicians, from their studies at the various military camps throughout the country.

Veeder (*Medical Record*, 1899, January 7) gives us the characteristic picture of a typhoid epidemic caused by flies, one in which

the infection travels from house to house, with short intervals of time between the separate outbreaks, the outbreaks usually following one another in the direction of the prevailing winds, the houses, of course, not having the same water supply.

As a preventive against such epidemics Veeder recommends the immediate treatment of the ejecta with copper sulphate, either in solution or in the dry form.

Sangree (*Medical Record*, 1899, January 21), after calling attention to the enormous number of flies present at the camps where typhoid epidemics occurred, gives the results of some experiments he performed, which were designed to show the ability of flies to carry infection.

He allowed flies to remain half a minute on an agar culture of anthrax bacillus in a Petrie dish; he then placed them upon a sterile agar plate, and found that at every point where the fly's foot had trod anthrax colonies developed. The same was also shown on potato.

It is reasonable to suppose that the same results could have been obtained with the typhoid bacillus.

Animal Experimentation.—Lépine and Lyonnet (*Gazette des hôpitaux*, 1899, No. 27) have contributed an article of interest in connection with the subject of experimental typhoid infections.

They injected two to three c. c. of a virulent typhoid culture either into the intestinal wall, into the central end of a mesenteric vein or into a vein of the general circulation. Within the course of a few hours there was noted, first, certain modifications of the temperature and of the number of leucocytes; second, an elimination of a certain number of the bacilli, especially in the urine and bile; third, a localization of the remaining bacilli in the internal organs, so that after a few hours they were to be found in the blood of the heart and of the great vessels, but not in the urine.

On the second or third day after the injection the bacilli showed a marked tendency to congregate in the liver and spleen, while after a few days the serum acquired agglutinating properties. After a few weeks bacilli could be obtained in pure culture from the liver and the spleen, even though all symptoms had entirely disappeared. By injection of one c. c. of the virulent typhoid culture into the trachea, in some cases a broncho-pneumonia, in others a true lobar pneumonia could be produced, and in either case the typhoid bacilli could be obtained from the consolidated area. Here, also, the bacilli were seen to be in the different organs, and especially in the liver and spleen.

Transmission of Agglutinating Power.—Mossé and Frenkel (*La Presse Medicale*, 1899, January 14) report a case in which the agglutinating power of a woman with typhoid fever was shown to be transmitted to her child born during the fever.

Their conclusions from a consideration of this and other cases are:

1st. The typhoidal agglutinating property may pass from mother to fetus through the non-altered placenta.

2d. This property may be found in the new-born if the mother has had typhoid fever during the gestation.

3d. The reaction is much less marked in the child than in the mother, and diminishes rapidly after birth.

4th. The energy of the agglutinating power of the mother, and especially the length of time in which the agglutinating substances have been impregnating the placenta, are important conditions of the transmission of the agglutinating power from mother to child.

5th. The agglutinating power of the mammary secretion, usually much less than that of the blood, may, in certain cases, reach a high degree (sometimes 1 : 100).

Delamarre and Chaillou have also reported a case of the same nature and arrive at the same conclusions.

Diagnosis—(a) *The Widal Reaction.*—As might readily be supposed, a large proportion of the recent articles upon typhoid fever has been devoted to the reaction of Widal, the serum-diagnosis.

Van Houtum (*Nederl. Tijdschr. v. Geneeskunde*, 1898, II, p. 840) found that of ninety-seven cases of typhoid at the hospital at Rotterdam, twelve did not give the Widal reaction during the second and third weeks. Of these twelve, four died during this period, while the remaining eight all gave the reaction during the fourth week.

In examining thirty cases that did not have typhoid fever, agglutination occurred in seven in a dilution of 1 : 10; in six in 1 : 20; in three in 1 : 30, while in stronger dilutions agglutination was not observed, either macroscopically or in the hanging drop.

The report of Van Houtum's cases with very late Widal reaction probably explains those cases of typical typhoid in which the reaction was not obtained, as practically all such cases that have been reported were fatal, and it is probable that if the patient had lived agglutination would have made its appearance later in the course of the disease.

As to the mechanism of agglutination, Dineur (*Arch. Med. Belges*, 1898, November), in opposition to the view of Kraus and Nicolle, believes that the presence of flagella in the bacilli is of great importance in the phenomenon of agglutination.

According to Dineur, the more plenteously the micro-organisms are supplied with flagella the more pronounced is the agglutination, he believing that the flagella, under the influence of the typhoid serum, acquire the ability to cleave together, *i. e.*, agglutinate.

(b) *The Diazo-Reaction.*—To definitely determine the value of Ehrlich's diazo-reaction in typhoid fever, Krokiewicz (*Wien. klin. Wochenschrift*, 1898, XI, 29) has examined the urine for this reaction in 1105 patients with various diseases, making in all 16,167 urinary tests.

From this enormous number of examinations he comes to the following conclusions: In the course of pulmonary tuberculosis the appearance of the diazo-reaction is a bad prognostic sign. If

the symptoms are insignificant, and yet the diazo-reaction is present, the disease usually takes a very rapid course and ends fatally.

If the tuberculous process is mainly confined to the mucous membranes, the glandular system or the uro-genital apparatus, then the reaction either does not appear at all or appears very occasionally.

In abdominal typhoid the reaction appears, even in mild and abortive cases, in the first and second periods of the disease. Later it becomes less marked and disappears.

The reappearance of the reaction during the period of convalescence almost always signifies a relapse.

The reaction seems to be always absent in cases of carcinoma of the stomach.

(c) *Diagnosis from Meningitis.*—Loeb (*Deutsches Archiv für klin. Medicin*, Vol. LXII, parts 3 and 4), in reporting a case of typhoid fever with meningeal symptoms, states that in diagnosing this condition (in its early stages before the Widal reaction is present) from true meningitis the only sure method is the demonstration of the typhoid bacilli, preferably by splenic puncture, while the leucopenia usually found in typhoid fever may also be of help (the relative increase of large mononuclears in the blood in typhoid fever might also prove of value here).

He places but little reliance upon the diazo-reaction or the presence of diarrhea.

Incubation: Earliest Symptoms.—Janchen (*Wiener klin. Wochenschrift*, 1898, No. 27), from the study of a small epidemic (thirty-six cases) of typhoid fever among soldiers, which could be directly traced to the drinking of infected water while on the march, has furnished some interesting data regarding the incubation-period of the disease.

In three cases the first symptoms appeared on the second day, in seven on the third day, in six on the fourth day, in thirteen between the fifth and seventh days, while the remaining seven exhibited their first manifestations of the disease during the second week after the infection. From a careful study of his cases Janchen comes to the conclusion that the incubation-period is shortened either by an increased virulence on the part of the micro-organism or a diminished power of resistance on the part of the patient.

Prognosis.—Engel (*Wiener med. Wochenschrift*, 1898, Nos. 15-18), after showing that the prognosis is less good in well-nourished fat individuals than in their thinner, more wiry brothers, and that concomitant affections, as tuberculosis and diabetes (but not lues) render the prognosis more grave, devotes the greater part of his paper to a consideration of the relations existing between various cardiac disorders and the prognosis. As might have been expected, the prognosis was shown to be much worse if the patients were affected with fatty heart, arterio-sclerosis or atheromatosis than in valvular diseases.

Most of the severe and lethal cases were found among those

with high (over 120 per minute) or medium (100-120) pulse-rate, while subnormal pulse-rate, and especially arrythmia, must be regarded as especially bad prognostic signs. On the other hand, dicrotism was more likely to be seen in those cases which subsequently showed a favorable termination.

Complications—(a) *Urinary.*—During the year numerous reports of the finding of the typhoid bacilli in the urine have been made, and especial stress has been rightly laid upon the great danger of infection from this source and the necessity for disinfecting the urine quite as carefully as the feces.

Gwyn (*Johns Hopkins Hospital Bulletin*, 1899, June) concludes his report of seven cases of cystitis due to the typhoid bacillus as follows:

"Since typhoid bacilli are present so frequently and in such abundance in the urine, unless a systematic bacteriological examination can be made all typhoid urines should be disinfected before being thrown out. Great care should also be exercised in the handling and routine examination. Careful centrifugalization of urine is usually possible, and, in the absence of cultural tests, should be insisted upon. Detection by this means of bacilli in fresh urines should suggest the applicable antibacterial treatment and proper disinfection of the urine."

Richardson (*Journal of Experimental Medicine*, 1898, Vol. III, No. 3) has already shown from a study of the cases in the literature and his own nine cases that typhoid bacilli are passed in the urine of about 25 per cent. of all cases with typhoid fever, and that this elimination usually does not occur until quite late in the disease, the end of the second or during the third week, persisting for a long time unless appropriate treatment is carried out.

According to the same observer (*Journal of Experimental Medicine*, 1899, Vol. IV, No. 1), this treatment consists in the administration of urotropin, which he regards as almost a specific in this condition.

Schichhold (*Deutsches Archiv für klin. Medicin*, Vol. LXIV) found the bacilli in the urine of five of seventeen cases of typhoid fever examined, always associated with some albumen. Two of these cases came to autopsy, when one showed multiple abscesses, the other cloudy swelling of the kidney. In two other cases in which symptoms of cystitis were present pure cultures of Bacillus coli communis were obtained, an observation already made by Blumer, Melchior, Rovosing and others.

Schichhold believes that the demonstration of Eberth's bacillus in the urine shows that the case is one of nephro-typhus.

(b) *Cholecystitis.*—Wunscheim (*Prager med. Wochenschrift*, 1898, Nos. 2 and 3), Imhofer (*ibid.*, 1898, Nos. 15 and 16), Cushing (*Johns Hopkins Hospital Bulletin*, 1898, May), Miller (*ibid.*, 1898, May) and Mixter (*Boston Medical and Surgical Journal*, 1899, May 25) have each reported a case of cholecystitis due to the bacillus typhosus. In Wunscheim's case, besides the infection of the gall-bladder, where the bacillus was obtained in pure culture there was

a circumscribed suppurative peritonitis where a staphylococcus was also found. In Imhofer's case an operation was successfully performed for the peritonitis arising from the rupture of the gall-bladder. In Miller's case the bacilli were found seven years after the attack of typhoid fever, while in Cushing's case there was nothing in the history of the patient to suggest that she had had any form of enteric fever, and the sole complaint was the recurring attacks of gall-stone colic.

In all cases Eberth's bacillus was obtained from the gall-bladder in pure culture, while in three (Imhofer's, Mixter's and Cushing's) cases cholelithiasis was associated with the cholecystitis. These three cases were operated upon and all made complete recoveries.

(c) *Perforation.*—Platt (*Lancet*, 1899, February 25) reports three cases of typhoid perforation which were operated on, one of the three operations being successful.

He has collected in all 103 cases of typhoid perforation followed by operation, with twenty-one recoveries, and concludes that if the operation was undertaken within twenty-four hours of the time of perforation recovery would follow in from 25 to 30 per cent. of the cases.

(d) *Other Complications.*—Cappellari (*Gazz. degli ospedali e delle clin.*, 1899, No. 43) reports five severe cases in an epidemic where characteristic tonsillar ulcers were present, while Schutz (*Berliner klin. Wochenschrift*, 1898,. No. 34) has in one case demonstrated the typhoid bacilli in swellings of the lymph follicles of the laryngeal mucous membrane.

In this connection the case of ulceration of the esophagus, complicating typhoid fever, reported by Riesman (*Philadelphia Medical Journal*, 1899, September 23) and Summers' (*ibid.*, 1899, October 28) case of esophageal stricture, as a complication and sequel of typhoid fever, are of special interest.

Among the rarer complications of typhoid fever recently reported may be mentioned Strassburger's (*Münchener med. Wochenschrift*, 1899, No. 1) case, with purulent epididymitis; Stahl's (*Philadelphia Medical Journal*, 1898, October 15) case, with gangrenous dermatitis; Hübener's (*Mittheilungen aus den Grenzgebieten der Medicin u. Chirurgie*, Vol. II, part 5) two cases of typhoidal osteomyelitis, in both of which pure cultures of the bacilli were obtained. In one of these cases the bacilli were obtained four and one-half years after the attack of typhoid.

The cases of typhoid fever—seventy-five in number—which were admitted to the Royal Victoria Hospital in Montreal in 1897 have been reported by MacDougall and McElroy (*Montreal Medical Journal*, 1898, August).

The mortality was 9.3 per cent., two of the seven cases dying after surgical interference had become necessary; death occurred on the average on the eleventh day of the disease.

The longest duration of fever was seventy-one days, the shortest eleven. In 85 per cent. the onset was gradual, while in 15 per cent. it was sudden. Diarrhea was present in less than 30 per cent. of

the cases, usually in the initial stage of the disease; constipation in 40 per cent.

The disease was ushered in by epistaxis in only 16 per cent. of the cases, while a well-marked roseola appeared in 80 per cent., appearing from the third to the twenty-eighth day and lasting from seven to forty-one days.

As complications there were observed intestinal perforation in two cases, intestinal hemorrhage in two, cardiac dilatation in two, myocarditis in one, cyanosis in five, femoral phlebitis in three, pleurisy in five, bronchitis in eight, nephritis in eight, abortion in one, icterus in two, crural neuritis in two (during convalescence) and periostitis of the ulna and tibia in one.

The Widal test was positive in all but one case, appearing in a few cases as early as the third day, occasionally being delayed until the third week; on the average, on the eleventh day. The causes of death were hemorrhage in one case, purulent cholecystitis in one, intestinal paresis in one, toxemia in two, perforation in two.

Therapy.—A recent article by Shattinger (*Medical Review*, 1899, November 4) gives in a very striking way a comparison of the results obtained under different therapeutic procedures.

He has collected 11,902 cases treated by the cold-bath method alone, with a mortality of 5.7 per cent.

He also gives tables showing the mortality under the use of various intestinal antiseptics, from the evident efficacy of some of which he concludes that they also may be of some value and should be used in conjunction with the cold baths. Perhaps the most interesting portion of his article is a series of figures designed to represent graphically the mortality under different treatments in different countries, and in different hospitals under a variety of treatments.

From the study of these tables and charts he concludes that no procedure is comparable to the rigid application of Brand's method, and closes his article with a strong plea for a more general use of the cold bath as the essential therapeutic agent in all cases of typhoid, whether in hospital or in private practice.

Antityphoid Inoculations.—Sir Dyce Duckworth (*Lancet*, 1899, II, p. 1407) gives his notes on a case in which antityphoid inoculations were practiced. They are designed, in the first place, to show the symptoms which arise after the inoculation, and, secondly, to call attention to the importance of encouraging its adoption, so that a sufficient number of cases may be accumulated to show how much immunization is provided by this method. The case Duckworth inoculated was a young man, aged twenty-four years, who was about to proceed on tropical service, where the chances of contracting typhoid was, of course, markedly increased. He was first given one c. c. of the antityphoid vaccine, which was furnished by Professor Wright of Netley, and within two hours the temperature had risen from 97.6° to 99.4°, with slight headache and some pricking pain and throbbing at the spot where the inoculation had been made. In seven hours the temperature had risen

to 100°. In nine hours a patch of vivid redness was apparent around the point of injection, the appetite was impaired and there was considerable thirst. On the second day the temperature was slightly elevated, while by the third the whole general condition, as well as the temperature, was normal.

Nine days later a second inoculation was given, with a recurrence of all the above symptoms, but all were of a milder grade, and the patient was out again on the second day. After each inoculation there was one loose fecal movement, and the urine, at first lighter and increased in amount, became subsequently darker in color and diminished in quantity. The diazo-reaction was not present.

A week after the second inoculation the blood was tested for Widal's reaction, and it was found to agglutinate vigorously, even in dilutions of 1 to 200.

Duckworth insists especially upon the absolute necessity of securing absolute asepsis in the inoculation.

As to the duration and extent of the prophylaxis conferred by this method, time alone can definitely tell, but we will watch with marked interest the reports from the various British camps in South Africa, where a certain number of the soldiers have been vaccinated by the method described above, to learn more about this point.

Jez (*Wiener medicinische Wochenschrift*, 1899, February 18) found that he was able to obtain from the organs of animals inoculated with typhoid bacilli substances capable of exercising a curative influence upon typhoid infections.

The method employed was as follows: Guinea-pigs were given intraperitoneal injections of typhoid cultures of steadily increasing virulence, until tolerance was established, when the animal was killed and an extract made of the various organs by cutting them into pieces of small size and rubbing them up with a solution consisting of sodium chloride, alcohol, glycerine and a small amount of carbolic acid.

This extract was employed in the treatment of eighteen cases of typhoid, being given in from teaspoonful to tablespoonful doses every two hours, and in all cases marked improvement was noted; the pyrexia became remittent and soon disappeared, the pulse improved, diarrhea ceased and convalescence speedily set in. No unpleasant secondary effects were observed.

Gould, in commenting upon this article, says: "This contribution to practical organo-therapy seems to be a most important one, but time and observation must prove its value. One thought suggests itself in connection with the mode of production of the extract, and that is the use of the blood serum of the animal in making the emulsion of its viscera. Even if the serum contained no protective or curative substance, it would appear to be an innocent and most natural menstruum. It seems not impossible, further, that the activity of the extract might be enhanced, in some instances at least, by this modification."

PATHOLOGY AND BACTERIOLOGY.

Under the Supervision of Robert Reuling, M.D., Baltimore.

A New Method for the Differentiation of the Organisms of Human and Fowl Tuberculosis, Leprosy and Smegma. Marzinowski. *Centralbl. für Bakteriologie.* Erste Abth. Bd. XXV. Nos. 21-22.

The author claims the following stain gives differential results with the above-named organisms provided his methods of its employment are adhered to:

A watery solution of ordinary carbol fuchsin, consisting of two parts water to one part stain; a solution of Loeffler's methylene blue.

METHOD.

Bacillus of Human Tuberculosis.—Stain specimen from three to five minutes with the carbol fuchsin solution. After carefully washing off all excess of stain with water, stain with the Loeffler's solution two to three minutes.

The organism of human tuberculosis fails to stain at all, even after prolonged contact with these stains. This holds good for bacilli in sputum or in tissues.

Bacillus of Smegma.—When above method is employed the bacilli of smegma stain red. If the methylene blue is left in contact with specimen for ten to fifteen minutes the bacilli take on a more violet shade and eventually stain blue.

Bacillus of Leprosy.—Carbol fuchsin two to three minutes and one and one-half to two minutes in Loeffler's solution. The bacilli of leprosy stain red, and their protoplasm appears granular. Alcohol decolorizes them quite readily, but when treated for ten minutes with the Loeffler's solution the color disappears still more markedly.

Bacillus of Fowl Tuberculosis.—Sections of tissue are placed from six to eight minutes in carbol fuchsin solution. After washing in water, stain for five minutes in Loeffler's solution. The sections are mounted in the usual way after treating with alcohol, oil of bergamot, xylol, balsam. The bacilli stain red even after prolonged treatment with alcohol. Prolonged contact with Loeffler's solution changes their color slightly, so that they take on a rose-pink stain.

This method is claimed to be especially satisfactory for the differentiation of tubercle and smegma bacilli in the urine and as a contrast stain for the organisms of leprosy and tuberculosis in tissues.

Remarks on a Case of Typhoid Fever which Failed to Give Widal's Serum Reaction. Schumacher. *Zeitsch. für Hygien u. Infectionskrankh.* Bd. XXV. No. 3.

The case ran a typical clinical course of typhoid fever, and the autopsy showed the pathological changes to be those of typhoid. Repeated tests of the blood during life and just after death failed to show the presence of a Widal reaction. Schumacher discusses the question whether this reaction is a result of infection or is only present when healing of tissues takes place. He believes one can as yet come to no definite conclusion on this point.

The following similar case, in which the clinical picture was that of typhoid, but which failed in repeated tests to show the Widal reaction, is reported by Gwyn (*Johns Hopkins Bulletin*, No. 84, Vol. IX, 1898). He obtained from this patient's blood a "paracolon bacillus" which resembled in cultural characteristics and morphology the typhoid bacillus very closely, but still showed certain differences.

The patient's serum caused agglutination of this organism in dilutions from 1-150 to 1-250, and the reaction persisted in the blood for two months. All during these observations the serum failed to clump known typhoid bacilli if diluted over 1-5.

Widal and Noblecourt (*La Lemaine Medicale*, August 4, 1897) report a similar case in which the blood of a patient with all the symptoms of ordinary enteric fever failed to clump the typhoid bacilli when diluted beyond 1-20, while on a "para-colon bacillus" the same serum reacted at 1 to 12,000 dilution.

* * *

Contributions to the Pathological Anatomy of Basedow's Disease, with Special Reference to the Muscular Changes. Max Askanazy. *Deutsch. Arch. f. Klin. Med.* LXV. Nos. 1-2. 1898.

He reports on the pathological changes found in four cases.

Case 1. A woman, aged thirty-three, had suffered with symptoms of exophthalmic goiter for seven years; marked emaciation at time of death, which resulted from acute articular rheumatism and hemorrhagic nephritis.

Case 2. Woman, aged thirty-five; Basedow's disease for six years; died of cardiac asthenia.

Case 3. Woman, aged thirty-seven. The disease was of six years' duration; death followed two days after an operation for partial removal of thyroid gland.

Case 4. A woman, aged thirty-two; sick for one year; died of acute peritonitis.

In the first three cases the changes in the muscles were about equally well marked. A widespread interstitial lipomatosis of the voluntary muscles was found. Many muscles had completely disappeared, and in the portions that remained all stages of muscle degeneration was found. Some fibers had lost their normal striations and appeared of a homogeneous structure, with deposits of

small yellowish coloring matter in the protoplasm. The fibers frequently were split up into bodies rich in nuclei resembling giant cells, they being apparently formed by a rupture of the sarkolemma. The changes were very marked in the muscles of the trunk, eyes and tongue. In one case the muscles of pharynx and esophagus showed marked changes.

Notwithstanding these pronounced muscular degenerations the examination of the nervous system was negative. The small-muscle nerve fibers, larger peripheral nerves and the arteries and posterior horns of the spinal cord were normal.

Askanazy believes these changes were due to a toxic substance in the blood which acted directly on the muscles. He refers to similar changes found by Langhaus in the muscles of cretins. He believes the exophthalmus, the difficulty in deglutition and the deficient expansion of chest during inspiration (Bryson's symptom), the rapid loss of flesh, etc., can all be explained by the degenerations in the muscles.

The changes in the thyroid glands in these cases show that these are characteristic for this disease, and almost all recent investigations confirm such an opinion.

All the glands showed an adenoma-like structure, conversion of the follicles into tubular structures, with cylindrical epithelium, absence of the normal colloid and desquamation of the epithelial cells, increase of connective-tissue elements and dilatation of the veins and lymphatics. Askanazy again lays stress on the erroneous idea that the enlargement of the thyroid in this disease is a result of increase in its blood supply.

* * *

A Case of Primary Sarcoma of the Heart. P. Geipel. *Centrabl. für Allge. Patholog. u. Patholog. Anatomie.* Bd. X. Nos. 21-22.

The article begins by relating the autopsy findings. The author mentions, however, that there were no symptoms referable to the heart during the patient's life.

Autopsy.—A woman, aged fifty-three, who died from the effects of a left-sided cerebral hemorrhage, which destroyed the posterior portion of the corpus striatum and the greater portion of the internal capsule and island of Reil.

The heart was not enlarged. Neither ventricle was dilated, nor were their walls thickened. The right auricle was almost completely filled by a tumor mass the size of a small apple, attached by a broad base to the auricular septum. It measured 5.5 c. m. in breadth, 4.5 c. m. in its longitudinal diameter and 4 c. m. anteroposteriorly. The surface of the tumor had a brownish-red color. Its lower margin reached just to the border of the attachment of the tricuspid valve.

Microscopical examination showed the growth to be a medium large, round-celled sarcoma, with a little connective tissue stroma.

It apparently had its origin from the endocardial cells of the auricular septum.

Geipel mentions the collected statistics of Berthenson (*Virchow's Archiv*, Bd. LXXX, 11, 1893), who was able to collect but thirty cases of primary tumors of the heart from the literature. In seven of the cases collected by this author both auricles contained tumor tissue; in three cases the growth was in the right ventricle, and in the left ventricle in five cases.

A case showing a large metastatic carcinoma of the heart is also described in Geipel's article.

RECENT REPORTS ON THE OPERATIVE TREATMENT OF HERNIA.

By Hugh H. Young, M.D.,
Baltimore.

DURING the past six months two valuable reports on hernia have been made, the first by Bloodgood and the second by Coley.

Bloodgood's work appears as a special fasciculus of the *Johns Hopkins Hospital Report*, Vol. VII.*

This splendid report of 339 pages, profusely and beautifully illustrated, is the result of much painstaking work extending over a period of many years, and forms one of the most important contributions to the surgery of hernia. We have only space to refer briefly to the many important subjects discussed.

After showing that Dr. Halsted performed his first operation during the year previous to Bassini's publication in 1890, he refers at first briefly to the modifications in technique which have been proposed in Halsted's clinic—first, in 1892, the ligation of a bundle of veins; the demonstration of the germicidal properties of silver, and the adoption of silver wire and silver foil; the introduction of the continuous subcutaneous silver suture for the skin; the higher abdominal skin incision, thus avoiding most of the pubic blood-vessels; the transplantation of the rectus muscle into the lower part of the wound to replace a very weak conjoined tendon; the splitting of the cord and transplantation of the veins only, to outer angle of wound, the vas coming out at lower angle, and the adoption of local infiltration anesthesia in many cases, especially in severe strangulated herniae and in aged and debilitated patients.

An honest effort to expose all of the weak points of hernia operations is shown all through the work, and one could hardly expect an enemy to attack the integrity of Dr. Halsted's operation more vigorously. There has been no exclusion of cases, and the history of failures is discussed more fully than the successes. A

*Operations on 459 cases of Hernia in the Johns Hopkins Hospital from June 1, 1889, to June 1, 1899. The special consideration of 268 cases operated on by the Halsted method, and the transplantation of the rectus muscle in certain cases in which the conjoined tendon is obliterated. By Jos. C. Bloodgood, Associate in Surgery, Johns Hopkins University, etc.

great deal of time and expense has been incurred in an effort to follow every case, with especial reference to recurrence, secondary suppurations, sinuses and the condition of the testicle.

Great care has been observed in examining and describing the cases, and the statistics and tabulations on the various problems of hernia furnish material for much careful deduction. One is, however, struck by the entire absence of theories. It is only with the facts, elicited by careful observation, that Dr. Bloodgood has dealt.

Of the 459 patients, 384 were males and 75 females. Of the hernias, 405 were ingpinal, 24 umbilical and ventral and 30 femoral.

A very careful description of the Halsted operation is given, followed by a discussion of the various steps. This is very timely, as misconception of the operation is shown by the descriptions in many of the text-books.

THE HIGH SKIN INCISION.

The high skin incision is certainly a great advantage. It does not complicate the operation, as the loose skin can be easily drawn down by retractors, while the less sterilizable peno-scrotal region and the numerous blood-vessels encountered in a low incision are thereby avoided. The considerable assistance furnished by dividing the internal oblique at once, before exposing the sac, is dwelt upon, especially as an aid in strangulated hernias. If the veins are to be ligated and excised (which is now considered advisable only when they are large and redundant), Bloodgood has shown the importance of gentleness in handling the vas deferens, and advises that it should not be separated from its immediate attachments ("meso-cord"), and raised from its bed, only for a distance sufficient to allow suture of canal. There is little doubt that there is a distinct relation between rough handling and atrophy of the testicle. This will be referred to later. Bloodgood has shown that it is often of distinct advantage, after dividing the internal oblique and exposing the sac, to go at once through the peritoneum just above the neck of the sac, making a circular incision, and then closing the peritoneal opening before making any effort to free the remainder of sac from the cord and scrotal tissues. This is certainly a distinct advantage in cases with large and adherent sacs, the procedure of removal from above downward being more easily executed. It is analogous to a method frequently used in operations for appendicitis, when the distal end of appendix is held down by adhesions.

RESULTS.

After giving the details of all cases which recurred, Bloodgood thus summarizes the results of the Halsted operation:

"The results at the present date, June, 1899, are as follows, observation six months to ten years:

"Veins excised, 118 cases (109 healing per primam and 9 suppurating). No recurrence at the position of the cord (two at lower angle of wound).

"Veins not excised, 120 cases, with eleven recurrences at the position of the transplanted cord; seven in 109 cases which healed per primam (6.4 per cent.), and four in eleven cases healing by suppuration (36.3 per cent.). Of these four recurrences, two were at lower angle of wound.

"In the lower angle of the wound there have been four recurrences—two associated with obliteration of the conjoined tendon, * * * rectus not transplanted, and two associated with suppuration of the wound.

"[Combining all cases]—Ultimate results: Wounds healing per primam, 218 cases, nine recurrences (4.1 per cent.); all cases (including suppurations), 238 cases, fifteen recurrences (6.2 per cent.).

"It is only just to state that of the total fifteen recurrences seven are merely slight weaknesses in the wound, probably due to thin muscle and scar tissue.

THE CONJOINED TENDON.

A very important contribution is the exhaustive study of the relation of the conjoined tendon to recurrence of hernia. This tendon, which should be broad enough to cover the inner two-thirds of Hesselbach's triangle and thus furnish a buttress behind the external ring, is shown to be very variable both as to breadth and strength. In most cases it can be felt as a strong wall of tissue behind the external ring, but in others it may be thin and flabby, or so narrow as hardly to be felt by the examining finger. In 232 cases healing per primam, in which the conjoined tendon was wide and firm, there have been no recurrences at the lower angle of the wound, while in seven cases in which the tendon was narrow, or not palpable behind the internal ring, or "obliterated," as Dr. Bloodgood calls it, there were four recurrences at the lower angle. These figures show the necessity of strengthening the lower angle in such cases, and this Bloodgood has accomplished by incising the sheath of the rectus, drawing the muscle into the wound and firmly suturing it to Poupart's ligament for a distance of from three to five c. m. This procedure undoubtedly strengthens the wound greatly. Very little traction on the rectus is required, and observations of the condition in one case at another operation several months later and in another case at autopsy show that the muscle remains firmly in place.

Interesting tables are furnished which show that the "obliteration" of the conjoined tendon, while present in 37 per cent. of very large indirect herniae, is only present in 5 per cent. of all indirect hernia. In direct hernia it is, as might be expected, far more common, being present in about 50 per cent. of all cases.

SUPPURATIONS.

The study of suppurations forms an interesting chapter. They are divided into three classes—acute infections, secondary stitch abscess and late infection. Out of 446 cases there were forty-two suppurations (9.4 per cent.), and of these seven are acute infections.

In 116 cases closed with silk there were 24 per cent. suppurations, while in 330 cases closed with silver wire 4 per cent. suppurated. Of eighty-two cases closed with silk in which the wounds healed per primam four cases returned with secondary stitch abscess, while of 317 closed with silver healing per primam only one returned with stitch abscess. In practically all cases of suppuration the wounds closed with silk some of the silk sutures came away before the wound healed. Of thirteen cases sutured with silver in nine cases the wound healed in a few weeks without the discharge of a single silver stitch. Silver has, therefore, distinct advantages over silk. Not only have the wounds healed per primam in a greater number of cases, but in the great majority of suppurative cases the wound heals by granulation without extrusion of the silver—a thing that rarely happens with silk.

In 1889, 36 per cent. of the herniae suppurated; in 1897, 1 per cent. Several things have brought about this change—better technique, the higher incision, the use of silver wire and foil and the use of rubber gloves. The latter most important contribution to surgical asepsis was made by Dr. Halsted, who introduced the use of rubber gloves about 1890, and after that date almost every assistant invariably wore gloves. Bloodgood, however, was the first to wear them while operating and to demonstrate that they do not materially interfere with manual dexterity. Their recent widespread adoption undoubtedly owes its origin to Dr. Halsted's clinic.

In 104 cases closed with silver wire, in which the operator did not wear gloves, 9.6 per cent. suppurated, while in 226 cases, similarly closed, the operator and assistants wearing gloves, 1.7 per cent. suppurated.

Our space is too limited to discuss the chapters on "Contents of Sac," its "Relation to the Cord," "Strangulated Hernia," all of which furnish interesting statistics. It is clearly shown that it is much safer not to attempt immediate resection and anastomosis of gangrenous bowel, but simply to bring out the loop of intestine and perform suture at a later date.

Out of sixty-eight cases occurring in children (between one and fifteen years), forty-nine were very small herniae. There has been no recurrence of herniae in children after operation, although in five cases the wound suppurated. There is every reason to believe that hernia statistics in children will always be much better, with the same operation, than in adults.

THE TESTICLE.

Probably the most important chapter is that on the testicle after hernia operations. Atrophy of the testicle is shown to depend upon a previous epididymitis, generally of marked degree, and that this occurs much more frequently after excision of the veins. In 168 cases performed according to Dr. Halsted's first description, *i. e.*, without excision of the veins, there was only one marked epididymitis (hematoma), and in this case only has there been atrophy, while in fifty-eight cases in which the veins were excised and

the cord not carefully handled there was very marked epididymitis in ten cases, resulting in seven atrophies, showing that if all the veins are excised, and the vas left completely isolated, severe epididymitis and atrophy are prone to occur. If, however, great care be shown in handling the cord, the vas being left in situ, and only elevated when necessary to place the sutures behind it, and not robbed of its accompanying coverings, areolar tissue and small vessels, the veins can, as Bloodgood has shown, be excised with no fear of atrophy. In sixty cases performed by this method marked epididymitis occurred in three cases, and no atrophies have followed. This scheme, however, is hardly feasible in herniae with large adherent sacs, as it is generally necessary to handle the cord considerably and often to withdraw the testicle from the scrotum. In such cases, owing to the frequency of atrophies, the veins should not be excised. On the other hand, it has been shown that in cases in which the veins were not excised and the cord transplanted there have been recurrences of hernia in 4 per cent. of the cases; therefore where the veins are large, unless some are excised there is danger of recurrence, and, if they are, there is danger of atrophy. This suggested to Bloodgood the idea of splitting the cord, transplanting the veins to the outer angle and leaving the vas undisturbed at the lower angle of the wound. This procedure reduces the size of the cord and relieves the vas of practically all manipulation. The small isolated vas should give very little encouragement for hernia at the lower angle, and the veins form a smaller bundle at the outer angle than the whole cord would. Another advantage seems to be that there is less traction on the testicle. This operation has now been performed in forty-four cases, without a recurrence or an atrophy of the testicle. In twenty-six cases from six months to one year have elapsed since the operation. The prospect of splendid success with this procedure is good, and at present it is employed in the majority of cases in Dr. Halsted's clinic. The operation is the original Halsted procedure, with the exception that the vas is not transplanted with the rest of the cord, the canal being closed in front of it.

The idea is an ingenious one, and should the results prove as good as they promise now to be it would certainly seem to be the operation of choice.

COLEY'S STUDIES.

In *Progressive Medicine*, June, 1899, Coley gives an exhaustive review of the various operations for hernia. He quotes the results of Kocher's operation from the reports of Lebensohn and Beresowsky. Out of 163 cases of Lebensohn's, only fourteen were of large size. At Kocher's clinic primary union occurred in 91 per cent. of cases. In ninety-eight cases, followed for more than six months, there have been 4 per cent. recurrences. Fowler's operation is given in detail. Coley believes it is based on sound principles, but other simpler methods suffice, as a rule, but that in cases of undescended testicle the intraperitoneal plantation of the cord

would permit of elongation of the cord an inch of more, and thus enable the surgeon to bring the testicle farther into the scrotum.

It is interesting to note that in making the incision into the abdominal cavity Fowler must divide much or all of the posterior reflexion of the conjoined tendon or its palpable portion, which Bloodgood has shown to be of such importance in preventing hernia of the direct type and recurrence at the lower angle of the wound after operation, and for the absence or "obliteration" of which Bloodgood has proposed his transplantation of the rectus muscle. It will be interesting to see what future examinations of Fowler's cases show.

The operation proposed by Deaver "consists simply in adding Macewen's method of dealing with the sac to Halsted's operation," the object being to "obliterate a hernial fossa." This Coley thinks is theoretical and not based on practical observations, and, therefore, unnecessary.

Coley reviews Bloodgood's fasciculus from proofsheets. After giving a detailed description of the transplantation of the rectus, he says it offers a satisfactory method for certain very rare cases; that in 500 cases he has never seen a case in which satisfactory closure could not be made, and that only three of the 500 cases were of the direct variety.

There are several reasons why Coley has not encountered it more frequently. Bloodgood has shown that it occurs in only 5 per cent. of indirect hernia (only 1 per cent. of small indirect), but in 50 per cent. of direct.

Direct hernia is rare in children, and 70 per cent. of Coley's cases are children, and herniae in children are small in a large majority of cases. Therefore Coley would rarely meet the condition if he were looking for it. In Dr. Halsted's clinic the closure was considered satisfactory until a few recurrences came at the lower angle, and a careful study of the importance of the conjoined tendon was begun.

We do not believe that the rectus can be satisfactorily drawn into the wound in the ordinary Bassini operation, as Coley believes, for unless the sheath is incised it offers too firm a resistance.

SUTURE MATERIALS.

Coley takes a very firm stand against non-absorbable sutures. "His objections are not theoretical, but based upon personal observations in twenty-seven patients. In every one of these cases a sinus or sinuses developed at varying periods after wound-healing. These objections are very serious inasmuch as the healing of the sinuses often required many months, and in most cases relapse followed." In these cases either silk, silver wire or silkworm gut was used. Coley now uses catgut for ligatures and chromicized kanraroo-tendon for deep sutures, and with these he has obtained primary union in 95.5 per cent. of the cases (4.5 per cent. suppurations), which occurred between December 12, 1895, and September 20, 1898.

During same period there were 127 cases operated on in the Johns Hopkins Hospital by Halsted's method, and of these only three suppurated (2.3 per cent.). This includes immediate and late suppurations. In all of these cases silver wire was used for buried and skin sutures and silk for ligatures. Two were complete suppurations of skin wound, and healed by granulation without extrusion or removal of a single buried silver suture. The third was a minute skin abscess, due to a silk ligature. In not one single case, therefore, was the silver wire responsible for the suppuration, nor did it have to be removed in any instance.

If we take only cases of hernia operated on since gloves were worn by operator and assistants we have up to present time, December, 1899, 267 cases, with only four suppurations (1.5 per cent.)—one a stitch abscess, six months after operation, due to silk ligature, healed without removal of wires; two complete suppurations of superficial wound, healing without removal of buried wires, and the fourth a secondary stitch abscess from which one wire was removed.

These figures are borne out by the results of abdominal operations, other than hernia, in which the Halsted buried, mattress wire suture has been used, and show conclusively that there is less danger of suppuration with the buried wire suture than with Coley's kangaroo tendon, and that the fear of secondary stitch abscess and irritation from the buried wire is, in fact, unfounded.

Bloodgood's statistics are in full agreement with Coley's as to the danger of suppuration when large buried silk sutures are used. Most sutures probably become infected by the ungloved operating hand, and silver, with its smooth surface and antiseptic properties, of course is then less dangerous than silk. But since gloves are now invariably used it is probable that silk would prove almost as good as silver.

Dr. Halsted has shown conclusively by the invariable use of very fine silk for all ligatures for the past ten years that it may be used practically *ad libitum*, without fear of result, if only small bits of tissue be ligated and no strangulation of large masses done.

Its greater facility for use, ease of preparation and certainty of sterilization, and less tendency to slip, make it certainly more desirable than catgut as a fine ligature material.

RECURRENCE.

As to recurrence after operation, statistics show that there is practically no recurrence of hernia in children after operation—Halsted, sixty-one cases, no recurrences; Bull and Coley, 371 cases, three relapses.

In adults, Bull and Coley have had 247 cases, with nine relapses, or 3.7 per cent.—a result certainly a little better than is shown by Bloodgood's figures. It would be interesting to know whether all authors tabulate relapses alike, *e. g.*, a number of cases included by Bloodgood among the relapses only showed a stretching of the scar and slight bulging of the region of operation. These are not

really hernia, and if excluded Halsted's recurrences in cases healing per primam is 3 per cent.

Bull and Coley advise against operation in patients over sixty years of age and in large, irreducible hernia, as "the prospect of cure is small." They also advise against operation before four years of age. During the period of 1890 to 1897, inclusive, Bull and Coley treated at the Ruptured and Crippled Hospital over 24,000 cases of inguinal hernia in the male, and only operated on 342 cases by Bassini's method from December, 1891, to May, 1899, and while there must have been a large proportion of children among the herniae treated, there was possibly considerable care used in selecting cases suitable for operation.

The results obtained in Halsted's clinic controvert the advice of not operating after sixty years of age, or in very large hernia, but had such cases been excluded the recurrences after Halsted's procedure would have been considerably less, as suppuration has proved to be eight and one-half times as frequent in very large as in small hernia. Thirty per cent. of Halsted's cases were large—fourteen above sixty years, one above seventy-four years, one above seventy-five years, one above eighty-three years of age. But the mortality in old men has been *nil*.

The results in children have been splendid, and all ages, from thirteen months to eighty-three years of age, have been operated upon without any cause for regret.

Since Cushing has demonstrated that after cocainization of the ilio-inguinal and genito-crural nerves herniotomy may be done almost painlessly, there are hardly any contraindications to herniotomy either in infancy or old age.

PROGRESS IN DERMATOLOGY.

By T. Caspar Gilchrist, M.R.C.S., L.S.A.,

Clinical Professor in Dermatology, Johns Hopkins University and the University of Maryland.

A NEW and radical method of treatment of that very chronic and destructive form of cutaneous disease, lupus vulgaris, has been brought into prominence by Finsen of Copenhagen, with numerous successful results (Finsen's "Phototherapy," by Valdemar Bie, *Philadelphia Medical Journal*, October 7, 1899). Between two and three years ago Finsen thought out a plan by which he could use only the actinic rays of the sun in a concentrated form. Finsen's name has been well known for some years in connection with his red-light treatment of smallpox and other cutaneous diseases. In his method of treating lupus and other bacterial skin diseases he shuts off the heat rays (red, orange, yellow and green) of the sun and concentrates, by means of a large lens, only the chemical rays (blue, violet and ultra-violet), which are painless and cause no im-

mediate action. Finsen bases his method on the following experimentally proved data:

1. The bactericidal property of the chemical rays of light.
2. The power of the chemical rays of light to produce an inflammation of the skin (erythema solare).
3. The power of the chemical rays of light to penetrate the skin.

Finsen's assistant, Valdemar Bie, has shown that only the violet and ultra-violet rays are of any practical use as bactericidal agents, Since cloudy weather is frequent in Copenhagen, Finsen has now in use an apparatus by means of which the electric arc-lamp of twenty-five ampères is used in place of the sun's rays. The concentrated rays from this lamp will kill bacteria in a few seconds when they are spread in a stratum of agar about 1-5 m. m. thick. Sunburn had already been experimentally shown by Widmark to be due to the ultra-violet rays of the sun, and Finsen confirmed this, as well as proving that the blue and violet rays also produced the same results, only in a milder degree.

Other extremely interesting experiments were carried out by Godneff and Finsen, who, by inserting glass tubes containing muriate of silver beneath the skin of animals, showed that the sun's rays penetrated the skin, because the muriate of silver was blackened after the animals were exposed to the sun's rays for an hour. It was also demonstrated that the rays penetrated bloodless skin much better than when the circulation was normal. Thus if a piece of sensitized paper were placed at the back of the ear, and the concentrated chemical rays let fall on the ear, the paper was not affected after five minutes, but when the blood was pressed out of the ear it was affected after twenty seconds.

The treatment, then, is based on these three facts: (1) That the concentrated chemical rays of the sun are powerfully bactericidal; (2) that these rays can penetrate the skin; (3) that the penetration is much greater when the skin is made bloodless.

In the actual treatment, a lens is used of a diameter of 8x16 inches. The lens is composed of a plain glass and a curved one, and between the two is a weak ammoniacal solution of copper sulphate. Since one side is flat and the other curved, the effect produced is that of a lens. The blue solution absorbs the red and yellow rays, and the water, which is kept cool, absorbs the ultra-red rays, which, with the red and yellow, have a considerable heating effect. The heat rays of the sun are thus prevented from passing through the lens. The blue, violet and ultra-violet rays, which are necessary for treatment, pass through the solution and are concentrated, so that they are thus allowed to fall on the diseased skin, which is blanched by pressure. When the electric arc-light of about fifty to eighty ampères is used, four lenses of quartz are made use of, because quartz allows more of the ultra-violet rays to pass through. The apparatus is arranged like a telescope, and four to six instruments can be used with one arc. In this way areas of diseased skin of one and one-half centimeters in diameter are treated for one hour each day. The patch swells and reddens, and sometimes bullae

form, but necrosis has never resulted. The treatment has to be kept up daily for months.

Nearly 400 cases of lupus vulgaris have been treated in this way in Finsen's hospital. The milder cases are treated by sunlight, but in the severer lesions the electric arc light is used. Pyrogallic-acid ointment is also applied in the latter cases in order to make the skin smooth and thinner. All crusts are removed by cataplasms of boric-acid solution.

Only the lesions of the skin, hard palate, front part of the septum nasi, tongue and mucous membrane have been treated. In practically all the cases benefit has resulted, and in a large number a perfect cure has followed. Very little scarring results.

Finsen emphasizes the excellent cosmetic results which follow this treatment, and this is due to the fact that no destruction of tissue, healthy or diseased, takes place. The treatment is continued until all the nodules entirely disappear. Many cases have to undergo a second course of treatment. The treatment is painless.

Trials have been made in lupus erythematosus, but the results have not so far been very successful. In alopecia areata, where seven cases have been submitted to this process, the results have also been very hopeful.

* * *

In the *British Journal of Dermatology* (September, 1899) Macleod comments upon Finsen's phototherapy and describes Finsen's method and apparatus, and says that the question of relapses is at present unsettled, and in consequence it is impossible to predict the future of the treatment. Its disadvantages are its extreme slowness—four to six months daily—and the great cost of the apparatus. He also remarks that in lupus erythematosus the results were very inconstant, and it is suggested that the cases which react are really lupus vulgaris.

Macleod also comments upon Neisser's method of the *x*-ray treatment, which he investigated. Neisser asserts that by prolonged use of the *x*-rays the disease can be cured, with good cosmetic results. This treatment extends over months (six) for one hour daily.

Macleod thinks well of Lang's treatment, which is total excision, especially of the smaller patches. In this operation the excision must be made at least a quarter of an inch beyond the margin, and grafting is used, the graft to consist of dermis as well as epidermis.

Another form of treatment for lupus is the "hot-air" treatment of Holländer. The apparatus consists of a metal tube, with a nozzle at one end and at the other a rubber appliance like that used with a Paquelin cautery. The middle portion of the metal tube is heated with a Bunsen's burner, and so hot air up to 300° C. can be pumped through the nozzle. Complete anesthesia must be used, as the operation is very painful. As the hot air is applied the diseased area crackles and becomes blanched. The whitening of the patch indi-

cates when the application has been long enough. If one uses the hot air too long charring may result and ugly scarring follow.

* * *

Stephen Mackenzie (*British Journal of Dermatology*, November, 1899) also comments favorably on Finsen's method of treating lupus vulgaris. He attended Finsen's clinic for a week and saw the method and the results. The scars, he says, were "supple and smooth, without contraction, and less unsightly than by other methods of treatment." He saw cases where no recurrence had taken place after one year's and two years' discontinuance of treatment.

The objections to the treatment are (1) the length of time necessary, viz., daily for four to twelve months; (2) the cost of the apparatus and the staff required to carry out the treatment.

* * *

Allan Jamieson points out in a paper entitled "The Cause of the Reappearance of Pediculi Vestimentorum After Apparently Thorough Treatment" (*British Journal of Dermatology*, May, 1899) that the usual treatment prescribed in text-books is insufficient. The usual description of these pediculi is that they reside in the clothes, and the ova are to be found in the seams of the clothes, so that if the clothes are treated, and the patient be given a bath, then the case is cured. It has been noted fairly often that relapses take place, and Jamieson found a case which was admitted into the hospital that many ova were to be found on the lanugo hairs scattered over the body. He suggests, therefore, a more thorough treatment of the skin by applying paraffin (coal oil) over the whole body and then give a warm carbolic-acid bath. He prefers the name pediculi corporis to p. vestimentorum.

* * *

Jonathan Hutchinson, in a very interesting paper on "Diseases of the Nails, with Special Reference to Their Significance as Symptoms" (*British Journal of Dermatology*, August, 1899), refers to the well-known transverse furrows across the nails occurring after a severe illness, and observes that they can only be produced in persons who have thick nails. He cites the case of a young man who had thick nails and who was subject to "bilious attacks," which were functional in character, of short duration, and occurred periodically. Each attack produced transverse furrows on the nails. Hutchinson states a general law that these transverse furrows are most marked in the thumb nails and next in the nails of the index fingers. He believes the furrow is due to a temporary arrest of circulation to the nail.

In rare cases a white furrow, or even a linear hemorrhage may replace the furrow.

Hutchinson next refers to vertical lines occurring in the nails. He thinks this is due to "some disturbance of nutrition taking place at the root of the nail in connection with the general health." In some of the patients the health was quite good. The disease goes on for years, and nothing does it any good, the nail often eventually being destroyed.

Hutchinson next discusses psoriasis of the nails, and remarks that when associated with psoriatic patches elsewhere the diseased nails always present the same features, viz., an inflammation of the nail-bed, causing loosening of the nail from its bed, beginning at its free extremity or at its sides, so that a fine probe can be pushed under the nail for quite a distance. The nail remains intact and smooth on the surface, an accumulation of epidermis occurring underneath the nail. The disease usually begins at the free edge or sides.

The author asserts that many cases of psoriasis of the nails occurs without the disease appearing elsewhere, and it is amenable to treatment by arsenic. In some of these latter cases there is often a history of psoriasis occurring in a relative.

In referring to eczema of the nails, Hutchinson points out that there is usually a longitudinal furrowing of the nails or markings like little pin pricks over the whole nail. On rare occasions the mixed conditions of psoriasis and eczema may be present.

Syphilitic affections of the nails may show as much variety as the lesions on the skin and may imitate any other disease.

Another form of nail disease, occurring chiefly in children, appears like a pustular inflammation of the nail-bed, where little red spots appear near the root and break through the nail. Only one finger is usually affected.

Hutchinson thinks it is not so easy to prove the presence of the fungus in ringworm of the nail, and in cases which he thought was this disease the fungus could not be demonstrated.

* * *

TREATMENT OF SCABIES.—In the *Journal of Cutaneous and Genito-Urinary Diseases*, November, 1899, Sherwell emphasizes the use of sulphur powder in scabies. He recommends the washed flowers of sulphur, and believes it to be the cleanest, least disagreeable and the most efficient method of treatment. He directs that the patient first take a bath at night with soap (sapolio is recommended); the body and limbs are then rubbed lightly with a little sulphur lotion. Powdered sulphur is scattered between clean sheets. The patient thus bathes every night, the bed is powdered with sulphur every second night, and the wearing apparel is changed frequently. Thus in seven to nine days the case is cured. Sherwell asserts that he has never seen a dermatitis nor failure of cure with the method.

THE USE OF COLD IN THE TREATMENT OF PNEUMONIA.

[Editorial Note.—The following question was addressed to a selected list of representative clinicians in various parts of the United States: "Has the application of cold given you satisfaction in the treatment of pneumonia?" The replies came in very speedily, and the assembled opinions not only form a mass of strong testimony, but have also, as the Journal desired, much of the force and freshness of speech.]

Isaac E. Atkinson, M.D., Professor of Therapeutics and Clinical Medicine, University of Maryland School of Medicine, Baltimore, Md.:

I am not in a position to answer definitely the question asked. In the acute lobar pneumonia of children I am positive that I have observed marked benefit from the use of the cold plunge bath. The temperature has been reduced, the pulse diminished in frequency and increased in force, restlessness assuaged and sleep induced where sleeplessness had been a marked characteristic. I have not employed this measure frequently, but have seen nothing but benefit from it in children. I have not used the cold plunge in adults, but have noted great relief, pain, and, I have thought, alleviation of the symptoms from the ice poultice and from cold sponging (the latter too timidly practiced to enable me to draw positive conclusions, however). In view of the rather unsatisfactory results of the treatment of acute lobar pneumonia in adults by present methods, and of the decided advantages of the cold-water treatment in typhoid fever, etc., I am prepared to expect better results in pneumonia from this method. With children my practice is to immerse the body in warm water in the ordinary bathtub, and to rapidly cool down to 70° or 75° F., the bath lasting fifteen minutes.

Simon Baruch, M.D., New York:

The application of cold has given me satisfaction in acute lobar pneumonia, for the following reasons: In this disease the chief danger arises from the extraordinary labor thrown upon the heart. So long as the heart maintains a good supply of blood under good pressure to the organs, the latter may sustain life until the crisis passes. A rapid and compressible pulse, a muffled first sound, insufficient renal action, are danger signals which arouse the physician to a realization of the true significance of conserving cardiac energy. Spurring the heart by alcoholic stimulants may tide it over the danger, but it rarely succeeds. It is far wiser to forestall the danger, to "trim the sails" before the full force of the storm is upon the ship. There is no remedial agent so competent for this purpose as the application of cold to the cutaneous surface. Cold produces, as is well

known, primarily a contraction of the cutaneous arterioles, driving the blood to the underlying and internal vessels, which again send it back under the secondary influence of reaction, increasing the vascular area of the skin, which is capable of containing 50 per cent. of all the blood in the human body. This fluxion must be useful in removing vascular stagnation (which is the first manifestation of all inflammatory conditions) in the remote parts of the body. That there is an actual result is demonstrated by the increase of corpuscular elements in blood drawn from the lobe of the ear or thumb and by the increase in the quantity and toxic quality of the urine, after hydriatic procedures.

The increased tone of the peripheral vessels enables the latter to resume their propulsive action, which the existence of toxemia always impairs more or less, and to which are due to a great extent the increased and often exhausting efforts made by the heart.

Another effect of cold applications is the refreshment of the central nervous system, by which the functionating capacity of all the organs is enhanced.

In typhoid fever the tub (Brand) baths at 70° for fifteen minutes is the ideal mode of applying cold, because abstraction of heat is more difficult and disturbance of the patient less harmful than in pneumonia. In the latter disease I have found the cold chest compress at 60°, repeated every half-hour or every hour (see The Principles and Practice of Hydrotherapy, pages 114-126) the most useful method of applying cold. It affords comfort, relieves local pain when it becomes warm and prepares the surface for the short, quick reaction for the next application.

In this brief review I have only outlined the great utility of cold applications, which have given me more comfort and satisfaction than all other agents used during thirty-seven years' observation.

VINCENT Y. BOWDITCH, M.D., Instructor in Clinical Medicine, Harvard University, Boston, Mass.:

As to the use of "cold" in pneumonia, I have never resorted to ice bags or cold compresses for routine treatment. In hospital practice for nearly three years I have used cool sponge baths in almost every case, as in other fevers, when the temperature rises to 102.5°, the water being from 65° to 75° F., according to the condition of the patient. The only contraindication I have found to be when the patient is made more nervous or possibly uncomfortably chilly by the procedure. In that case I try sponging under the blanket, and if the same symptoms continue I give up sponging, except for cleanliness. The cases in which comfort is not given by cool sponging I find to be exceptional.

I regard, moreover, the treatment as efficacious more from its apparent soothing effect than from its absolute antipyretic results.

ELBRIDGE G. CUTLER, M.D., Instructor in Theory and Practice of Physic, Harvard University, Boston, Mass.:

I have used cotton strips (cotton cloth), two to three inches wide, applied as in broken ribs, and frequently renewed after dipping in ice water or very cold water—more particularly in the early stage or period of engorgement and over the seat of pain. It diminishes pain and affords comfort quicker than any other procedure. Its application I find to be more frequently objected to in private than in hospital practice. At times the method of application has to be varied, as the substitution of a thin rubber bag containing ice, ice water or cold water for the strips, or the use of a rubber coil, or the rubbing of a piece of ice over the affected portion of the chest. The indications for the use of cold in this manner are local pain, high fever, dyspnea, all of which are speedily, safely, and easily rendered less troublesome. To my mind the indications for the use of cold do not extend beyond a very few days, perhaps only over a few hours.

The only contraindications I have seen have been an occasional (rare) over-sensitiveness to the cold, a subjective symptom, and an increase in cyanosis. As a rule, the respirations are rendered easier, deeper, less painful, the fever and discomfort are lessened, and the patient expresses himself as decidedly relieved.

JOSEPH EICHBERG, M.D., Professor of Theory and Practice of Medicine, Miami Medical College, Cincinnati, Ohio:

Replying to the inquiry contained in your note just received, I would say that I have not employed cold or cold water in the treatment of pneumonia for several years past. The routine treatment in all except anemic and extremely prostrated patients has been the employment of hot baths, regularly repeated during the febrile period of the disease. I was led to this because of the unsatisfactory effects of the treatment by cold application and cold baths.

REGINALD H. FITZ, M.D., Hersey Professor of Theory and Practice of Medicine, Harvard University, Boston, Mass.:

I have not undertaken the continued application of cold in the treatment of pneumonia. Cold sponging has proven grateful to the patient, and I know of nothing to contraindicate its use when the temperature is markedly elevated.

CHARLES F. FOLSOM, M.D., Boston, Mass.:

I have used cold baths in pneumonia for several years, and regard them as being of the greatest value, as I do in nearly all the acute febrile diseases and in poulticing when the temperature is high. Generally speaking, I have used them pretty much as in typhoid fever.

My experience in pneumonia was given somewhat in detail in the New York Medical Journal some two years ago in discussion of a paper by Dr. Baruch at the Academy of Medicine on that subject.

F. Forcheimer, M.D., Professor of Diseases of Children, University of Cincinnati, Cincinnati, Ohio:

In the adult I use the ice bag; it gives relief to pain, it reduces the temperature and lessens the dyspnea. Occasionally there is found a patient who does not bear it well, and this is the only contraindication in the adult, except in the tubercular lobular form, when it should not be used. The ice bag ought to be used with great care in children, and never in infants. In the latter it may produce collapse. In the catarrhal pneumonia of children moisture and heat act better than cold; therefore I use either the poultice jacket or, when possible, hydropathic applications on the principle of the Priessnitz method, *i. e.*, cloths wrung out in water of room temperature, covered with some substance more or less impermeable to the moisture. These can always be employed in the adult when the ice bag becomes unbearable.

Geo. B. Fowler, M.D., Professor of Medicine, New York Post-Graduate School and Hospital, New York, N. Y.:

I have for many years resorted to the application of cold in the treatment of pneumonia, especially in Bellevue Hospital. Its seeming violence rather limits its use in private practice.

The class of cases to which I have applied cold have generally been those of severity, where the temperature persists at from 104° to 106°, where the pulse is rapid and feeble and where there seems to be little disposition towards resolution—such cases, in short, as appear to have a fixed tendency towards a fatal issue.

I generally direct the chest to be wrapped, or packed, in a sheet wrung out of water at about 50°; this to be kept on for two or three hours and, if necessary, repeated. This process is particularly adapted to children. In adults I frequently give the entire body the pack. I believe that cold applied to the chest is as useful and philosophical as when used in any other part of the body, and I have so frequently witnessed its beneficial effects in pneumonia, calming delirium, reducing temperature, inducing sleep, improving the heart's action and promoting resolution, that I shall continue to hold it as one of my most valuable therapeutic resources. I can think of no contraindications but those which would suggest themselves to any experienced physician.

Hobart A. Hare, M.D., Professor of Therapeutics, Jefferson Medical College, Philadelphia, Pa.:

I use an ice bag commonly in the treatment of pneumonia for its influence upon the heart, but it is not my custom to treat this disease by applying ice to the entire side of the chest which is affected. I believe, however, that in some cases marked benefit follows such applications, and that they are much more useful in croupous pneumonia than in catarrhal pneumonia, chiefly because the catarrhal pneumonia frequently occurs in persons who have not sufficient vitality to withstand cold applications.

E. G. JANEWAY, M.D., Professor of Medicine, Bellevue Hospital Medical College, New York, N. Y.:

I am not one of those who regard cold applications as essential in the treatment of pneumonia. Patients do very well who have no other application than an ordinary flannel undershirt. Of the different methods in which I have seen cold employed it has seemed to me that the sheet applied to the front of the body was the most satisfactory. Wet applications to the back of the chest are disturbing, and also may, as I have seen, lead to a very distressing furunculosis afterward. Very high temperature may call for sponging or the pack.

W. W. JOHNSTON, M.D., Professor of the Theory and Practice of Medicine, Columbian University, Washington, D. C.:

I have used cold packs most frequently in the early stage of acute pneumonia in children. The results have always been satisfactory, in the reduction of high temperature, and in lessening jactitation and delirium. In adults the chest compress has seemed to do good in some cases. In milder forms I have not used external cold, as it did not seem necessary. In severer extensive pneumonias, especially in double pneumonia, the cold, wet compress has often, in my experience, failed to have any appreciable effect. The procedure, however, seems rational, and a multiplied experience will no doubt prove its value.

J. C. LANGE, M.D., Professor Principles and Practice of Medicine, Western Pennsylvania Medical College, Pittsburg, Pa.:

In cases where the pneumonia was lobar—acute lobar pneumonia—the infectious inflammation, and when the extent of this, or the tolerance of the patient being very much taxed by it, threatened the patient by rapid respiration or by a much agitated heart—in short, in those case in which an unfavorable ending seemed probable from lung consolidation, I have found cold beneficial. I apply it by two or three rubber ice bags.

In those cases of infectious pneumonia, in which the patient is threatened by the toxemia rather than by the consolidation, I believe it useless, and do not apply it.

Neither do I use it in broncho-pneumonia, nor in the growing pneumonia of old age, if even a pleuritic stitch be present.

THOMAS J. MAYS, M.D., Professor of Diseases of the Chest in Philadelphia Polyclinic, Philadelphia, Pa.:

From my observation of the records of four hundred cases of acute pneumonia, which were treated with cold applications to the chest, and which were gathered during the last seven years from the practice of my colleagues and from my own, I believe that the ice bag is one of the most valuable and reliable additions that has ever been made to the therapeutics of this disease. It reduces fever, allays the irritability of the nervous system, diminishes respiratory and cardiac frequency, quiets cough, alleviates difficult breathing, tones up the function of the heart,

strengthens the pulse, abates pain in the chest, provokes sleep and gives general comfort to the patient. Moreover, I believe that I have witnessed, time and again, that it checked extension of the inflammatory process in the lung and aborted the disease. It is equally applicable in the croupous and catarrhal variety, at any age and in almost any condition, and the earlier it is applied the better will be the results.

The number of ice bags which are to be applied depends on the degree of fever and the area of pulmonary inflammation. If the fever is moderate, and the latter area small, two will answer on that side, with the addition of another on the corresponding opposite side. The latter is important for the purpose of preventing its spread to that side. Two bags should be applied to the head. If the fever is high, and the involved area large, any number may be applied—if necessary to cover the whole chest. The length of time during which they should be left in contact with the chest depends somewhat on the range of fever. If the temperature drops to or near the normal point it is a good plan to remove some of the bags, but it is best not to remove them all, even though the temperature is down, unless the crisis is certainly at hand. If all the bags are removed before this period the temperature will rise again and offer greater resistance to the action of cold than before. No harm comes from allowing the bags to remain longer than seems actually necessary.

John H. Musser, M.D., Professor of Clinical Medicine, University of Pennsylvania, Philadelphia, Pa.:

I have found the application of cold very satisfactory in the treatment of pneumonia. I make both local and general applications. Its local employment is confined to the chest. I use ice bags in some instances, but usually employ cold compresses in accordance with the method so well described by Baruch. I have seen some, to me, remarkable results from the application of cold by this method in old broken-down subjects in the Philadelphia Hospital. I am satisfied it acts in the manner pointed out by Dr. Baruch. The local use does not exclude the application of dry cups, which I do not hesitate to use frequently and freely in the early stage of the disease. The only contraindication that I can see is the early age of the patient, believing that compresses are terrifying to young children. Ice bags can be used in this class of cases, although the patient should be watched during their application. I have never seen any local disturbance of the skin, although it is possible such disturbance may arise.

I am guided in the use of the general application of cold by the same principles which guide me in the application of cold in typhoid fever. Sponging, of course, can be employed in nearly all subjects, and there are apparently no contraindications for its use. In robust sthenic subjects a cold wet pack can be employed for hyperpyrexia. A plunge bath, following the method of Brand, is of advantage in my experience in hyperpyrexia and in the conditions of severe toxemia. I do not hesitate to use it, and can see only those general contraindications that are laid down in typhoid fever. Cold, however, can only be employed, both general and local, as one of several measures to bring about a fortunate termination of the case.

De Lancey Rochester, M.D., Associate Professor of the Principles and Practice of Medicine, University of Buffalo, Buffalo, N. Y.:

I have used cold application in only three cases of acute lobar pneumonia, and have been well pleased with the results. While it had very slight effect directly upon the temperature, lowering it only 1 or 1.5 degrees, the nervous conditions were decidedly improved and the tongue cleaned up, the pulse lost its great tension, and crisis occurred in two cases on the fifth day, and in one case on the seventh day.

The mode of application in the one case was as an ice pack at four-hour intervals as long as the temperature was 102.5° or over. This was practiced throughout the course of the disease until the crisis occurred on the seventh day.

In the two other cases the cold was applied in the same manner as in typhoid cases, *i. e.*, a tub bath, temperature 85°, reduced rapidly to 70° or 65°, every three hours if temperature is 102° or over. These cases did remarkably well, but the number is too small to justify conclusions.

In broncho-pneumonia I have not used cold, as the frequent pulse of small volume and low tension seemed to me a positive contraindication. The hot-mustard foot-bath has been an efficacious measure both for reducing temperature and overcoming the nervous symptoms of toxemia, thus improving the general condition of the patient in these cases as well as in most cases of lobar pneumonia. The character of the pulse above described would seem to me to contraindicate the use of cold in lobar as well as in broncho pneumonia.

Andrew H. Smith, M.D., New York, N. Y.:

To a moderate extent, but only in cases of hyperpyrexia. In such cases it should be used in preference to the coal-tar preparations. The use of ice bags, as recommended by Mays, is the most convenient method of application. These can be shifted to different parts of the body, as the cold acts only through the general circulation, and produces no local effect upon the subjacent organs.

It is contraindicated when there is a high internal temperature, with a cool and cyanosed surface. Here sponging with hot mustard water is indicated to equalize the circulation. In children the general hot-mustard bath is most useful under these conditions, and will often relieve the respiration in a remarkable manner. If the blood is brought to the surface it will be cooled by atmospheric contact, and vascular interchange being promoted, the interior of the body soon receives the benefit.

Chas. G. Stockton, M.D., Professor of Practice of Medicine, University of Buffalo, Buffalo, N. Y.:

Applications of cold have been of service in the treatment of pneumonia, particularly in relieving pain and in controlling temperature. For relief of pain, I resort to the use of ice bags. In hospital wards this plan is followed in most cases except with young infants. It is not my plan to use the cold tub bath in pneumonia, although I have occasionally done so. I remember one case in particular which was greatly benefited by each bath, and the

treatment was continued until the crisis. The case terminated favorably, and was that of a youth about fourteen years old. I often use cold sponging and cold compresses in pneumonia, and am satisfied that the method is decidedly advantageous, but it appears to me that it must be conducted with some caution, and by experienced hands.

Thomas Hunt Stucky, M.D., Professor of the Theory and Practice of Medicine, College of Medicine, Louisville, Ky.:

During the past three years I have used cold entirely as a topical application over the affected lung, the same being applied from the time of recognition of the disease until resolution is thoroughly established.

The method of application has been by ice bags or the abdominal fever coil fastened about the chest, with a constant flow of ice water through the coil. Children I find do not bear it very well. Nervous excitement and restlessness follow, these being due largely to fear. I have never met a condition in which I would hesitate to use cold. Understand, in connection with this local application, strychnia and digitalis are used from the first, with oxygen when indicated.

James Tyson, M.D., Professor of Clinical Medicine, University of Pennsylvania, Philadelphia, Pa.:

At least as much satisfaction as any other treatment—ice wrapped in towels and applied to the consolidated part. The only contraindication is the absence of fever. I order the ice removed whenever the temperature is found at 100° F. or lower, and reapplied when the temperature rises above this again.

Cunningham Wilson, M.D., Birmingham, Ala.:

The application of cold has given me abundant satisfaction in the treatment of pneumonia. I have used the ice bag to the affected side, except in some cases, in children, who were restless and could not be made to keep quiet enough to use the ice bags. In such cases, where the temperature is high, I use the tub bath. I have met with no contraindications for this treatment where I thought it was required.

THE CLINICAL SOCIETY OF MARYLAND.

MEETING HELD DECEMBER 15, 1899.

The meeting was called to order by the president, Dr. James M. Craighill.

Dr. L. M. Allen: "Report of a Successful Symphyseotomy."

The patient, a colored woman, seventeen years of age, was admitted to the Lying-In Hospital September 4. She was a primipara, and the pregnancy had been normal. Physical examination showed the typical signs of rickets. The external conjugate was 7 cm. and the circumference 92 cm.; it was a flat rachitic pelvis. She went into labor on the 21st of October, about midnight, and the pains were normal. The presentation was right occipito-anterior, but the head could not enter the pelvis, and at 3 o'clock the next day she was prepared for a major operation should it become necessary. Examination under anesthesia showed that the head was pushed over to one side, and the left parietal bone was presenting. An attempt was made to fix the head in the pelvis, but it was found to be impossible, as the relation between the head and the pelvis was such that it could not enter, and, if it did, it could not be forced through. It was then decided to do a symphyseotomy.

An incision 2 cm. in length was made directly over the pubes, and a short transverse incision was made to separate the recti muscles, so as to admit the insertion of one finger. A bistoury was then passed down behind the pubes, and the bones were separated by an incision from behind forward. The trochanters were pressed together by an assistant, so as to prevent too great a separation. Version was then performed and the child delivered, the pubic bones being separated about 6.5 cm. The placenta was delivered in fifteen or twenty minutes, with a very slight hemorrhage. The patient was then taken to the ward and put into a swing prepared for the purpose. On the fifth day a mild sepsis showed itself, and cultures showed the presence of both streptococcus and staphylococcus, but she recovered from this by the ninth day, and on the tenth developed a lobar pneumonia. She made a good recovery from this, however, and, as you see, has perfect motion of the limbs in any direction, walks well, and the result seems to be perfect.

Dr. Neale: My experience with this operation is limited to one case, and I have not been very favorably impressed, nor do I think the procedure gaining favor. There are many dangers inherent to the operation, there are many conditions that render its performance absolutely impracticable, and worst of all is the fact that we cannot positively determine beforehand the cases in which the operation is indicated. Even if we could with certainty decide when it ought to be done, the results are still surrounded by grave doubts. For instance, the indications in this case were a flat, rachitic pelvis of 7 cm. conjugate. In this case the pubic bones separated 6.5 cm., a gain of nearly three-quarters of an inch in the true conjugate. In addition to this effect, the biparietal diameter of the child's head is said to be diminished by pressure, and, furthermore, the parietal eminence engages in the arch. This all sounds very well theoretically, but in actual practice

it is different. After measuring with great care, we must still rely more upon the bimanual palpation, and the possibility of engagement of the head in the pelvic brim. I have seen two cases of 7 cm. conjugate, in one of which all preparations were made for operation, and yet the woman was delivered spontaneously. I have seen such cases prepared by the greatest experts in the world, and before the operation could be performed spontaneous delivery occurred. Pelvimetry is the most reliable means at hand to determine the size of the pelvis, but we are as yet so far from accuracy that we can only estimate the true conjugate. We must bear in mind, too, that the degree of osseous firmness of the fetal head varies.

Aside from all these factors, which necessarily render the result uncertain, we can never tell whether we can get a head through after the symphyseotomy is performed, and on account of such uncertainty the operation is not likely to become generally popular. The operation is, in the majority of cases, a simple procedure, but in other cases it may be very difficult. On one occasion I saw, in Pinaud's clinic, a case in which the bones had to be chiseled apart, and the child was born dead. Further, in a large number of these cases, sepsis has been a complication, because we have a wound in an unfavorable situation. In the case I operated upon sepsis followed, but the woman survived.

I think the operation is justifiable and should be performed under proper conditions, but it is not based upon exact rules, and it will therefore not become a popular one. The Porro operation and Cesarean section have made great inroads upon symphyseotomy, and some of the best operators in the world are adopting one of the former operations and abandoning symphyseotomy. Of course, we all congratulate Dr. Allen on his success, and think that in this case he acted wisely.

Dr. Young: Though this work is not in my line, I may mention an interesting obstetrical experience I had last summer while on a vacation. I was staying on a ranch in Texas, and was asked to see a patient at a distance of about ten miles, which I journeyed on a broncho. She had been in labor three times in about three months. She had been pregnant for twelve months, and at three different times in the period stated had gone into labor. When I saw her pains were violent, the head was large and could not be passed. The physician in attendance had forceps, and I tried to use them, but did not succeed, perhaps on account of my inexperience. I then tried version, but failed, and then, taking the few instruments we had, performed a symphyseotomy, and removed the child with ease. I was struck with the simplicity of the operation, and though the technique was not perfect, we did not have any suppuration.

Dr. Winslow: Did not the late Dr. Michael perform a successful operation of this kind in the same hospital?

Dr. Allen: Yes, the operation has been performed three times in the University of Maryland, and all the mothers saved and only one of the children lost. In that case high forceps had been tried, and it is generally thought that will jeopardize the child's chances.

As Dr. Neale has said, many cases have been prepared for major operations, and then been delivered rather more rapidly than under normal conditions. Thinking of that, this patient was allowed to remain in labor sixteen hours before operation was attempted.

Medical and Chirurgical LIBRARY Faculty of Maryland

Dr. McKim: "Intrauterine Amputation."

Dr. McKim exhibited a child who had no toes on the right foot, a constriction of the leg just above the right ankle, and the terminal phalanges of two fingers on the left hand were missing. He stated that there were various theories as to the cause of such deformities, but thought the probable one in most cases was an inflammation of the amnion in the early stage of development, which leads to a fibrous exudate and consequent contraction. In this case there was no specific history, and the mother had suffered no fright.

Dr. Neale: I would like to ask if a microscopic examination of the fetal appendages would show anything of an intrauterine inflammation.

We are not inclined to believe much in maternal impressions, but I once delivered a child that had an upper extremity like the flipper of a fish, while the other arm was somewhat deformed. This woman gave a history of having been much interested in watching the antics of the sea lions in Druid Hill Park.

Dr. R. T. Taylor: This case has interested me very much in regard to the etiology, for a theory has been advanced in regard to talipes equino varus, that it is due to delayed inversion of the fetal leg.

Dr. T. R. Brown: "Report of Two Rare Cases of Cystitis."

One of Dr. Brown's cases was due to the typhoid bacillus and one to the bacillus pyocyaneus. The typhoid case had been operated upon for a large myomatous uterus, there was much handling of the bladder, and possibly some traumatism. Nine days later the temperature rose, accompanied by intense pain in the bladder, and the urine showed a marked sediment of pus. The urine had been examined on the day previous to the operation and found to be normal. On the seventh day after operation there were a few pus cells, and on the ninth day a large amount of pus and albumen was found. Cystoscopic examination showed the mucous membrane of the bladder universally inflamed, and an examination of the urine then showed the typhoid bacillus in pure culture and in enormous numbers. The patient had an attack of typhoid fever thirty-five years before, but there had been at no time any evidence of cystitis. It was therefore thought probable that the infection was introduced about the time of operation.

In the second case the infection followed an operation for ovarian cyst, in which the bladder was probably injured. As the catheter was frequently used during the next three days, and as the secretion was perfectly normal up to the time of operation, the probability is that infection was introduced by the catheter.

Dr. Young: Two and one-half years ago I found a case of chronic cystitis, due to the typhoid organism. The attack of typhoid had occurred five years previous to the time I saw him, but the cystitis had followed immediately upon the typhoid, though it gave him little trouble for four years. When he came to us he had the worst case of chronic cystitis I ever saw. A pure culture of typhoid bacillus was obtained. In our examination of numerous cases since we have found a great variety of organisms, which shows that the genito-urinary tract is liable to infection by almost any organism.

Dr. Thayer: Our attention in Professor Osler's clinic has been directed to this condition since Dr. Brunner's paper of a few years ago, and we have

had several cases of cystitis. Dr. Gwyn told me this evening of one case, seen recently, where the symptoms of cystitis were very marked and where the typhoid bacillus was isolated. I have also within the past month seen a case following a mild, but characteristic, attack of typhoid. Within two weeks after the temperature had reached normal the patient had a chill, followed by pain over the bladder, great pain on micturition, and the urine contained a large quantity of pus.

I do not think too much stress can be laid upon the fact, brought out by these investigations, that the urine in patients having, or having had, typhoid may be a source of danger for months, or even years, after, and when we think of the habits of men, who empty their bladders in all sorts of places, it becomes the duty of the physician to impress upon patients the fact that they should be careful where and how they empty their bladders, so as to avoid infecting others. H. O. Reik, Secretary.

THE FUTURE OF THE CLINICAL SOCIETY.

At the meeting of the Clinical Society on January 5 the question of its amalgamation with the Medical and Chirurgical Faculty was brought up, and after a brief discussion was postponed until April. Those who were heard on the subject were almost all apparently opposed to the change, but it did not appear whether this opposition is absolute or contingent upon the terms of union. Definite plans, if any have been formulated, were not presented. Not all of the objections which were urged can be easily met. The older men, who have been members of the "Clinical" throughout its twenty-five years' existence, are much attached to its name and history, and will not cheerfuly see the society relinquish any part of its autonomy. Others fear that as a section of the State Faculty the society would not have as full control of its membership as is desirable. It became clear in the debate that some of the associations of specialists will be decidedly opposed to the admission of persons to membership in their sections upon a general vote of the Faculty, and from this it follows that the specialists who are now members of the Clinical will not agree to have their privileges abridged by a strict distribution of the medical men according to their lines of work. The Clinical Society is at present perhaps the strongest of the local medical organizations, and would undoubtedly give up much in a union with the Medical and Chirurgical Faculty, but the advantages of such a union seem to fairly outweigh the necessary sacrifice.

The need of a well-compacted organization of the medical men in this State is of itself sufficient to counterbalance those objections which are chiefly sentimental, though not on that account inconsiderable. This need must be met, if at all, as Dr. Osler said, in one of two ways—by the formation of an Academy of Medicine or by gathering the various societies about the State Faculty as a parent body. If it should please the Medical and Chirurgical Faculty to make broad her phylacteries, and the separate societies should group themselves beneath these ancient and honorable garments, the simplest and most logical solution of the problem of organization will have been accomplished. It should be possible for a joint committee representing both bodies to agree upon such terms of alliance as would remove all reasonable objections from either side. F.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, JANUARY, 1900.

PROFESSIONAL MORALITY.

Two reputable observers, scrutinizing each a different phase of professional character, have found two humiliating indictments. One of our censors has for many years had exceptional opportunities for special observation over a wide territory, while the other has collected in a few days documentary proof of loathsome infection in a single community. Each of them has conducted his inquiry in a manner similar to the grand jury inquest upon a criminal charge, that is, with regard only to evidence of guilt. Since neither of them has either sought or obtained more than one sort of evidence, their findings have no force in either instance greater than that of an indictment, though it must be confessed that strong grounds are laid for a careful, and not too encouraging, investigation.

AN INOCULATION TEST.

Dr. G. F. Lydston of Chicago possesses a number of letters all of which were received in answer to the following "decoy:"

"August 10, 1899.

"Dear Doctor—It so happens that I have occasion to refer operations to the city for treatment. I have been sending them to a gentleman who has recently treated me in a way I don't like, and I am therefore desirous of making arrangements with some one else. What portion of the fee do you give the doctor who brings the case? I am free to say that I have always had 50 per cent. This is not too much, because I always know just what a patient can stand, and have him worked up for a good fee beforehand. This is a rich farming country, you know. An early answer will oblige me, as I have several cases that ought to be operated on very soon."

Nearly all the "representative surgeons" of Chicago are said to have been inoculated with this by no means attenuated product, and we are told that 60 per cent. gave positive reactions. We are not informed how many "representative surgeons" there are in Chicago. If the names of the representative men are to be found among the teachers, about 60 per cent. of representative surgeons in Chicago are osteopathists, orificialists and other like surgeons-for-revenue-only. If these were among the tested cattle, the results are not surprising. If, however, we are to believe that six of the ten surgeons in that city whose names we know are ready to divide fees with a medical pimp, who knows exactly "how much a patient can stand," then the other four cannot too speedily stand out of the drove and demand to be inspected. This they should do no more for their own sakes than for

the comfort of us at a distance, who do not wish to discount their decency at any ratio whatever.

Such a letter as this decoy ought not to have been tried upon any but representative men, whose incomes easily meet all their reasonable needs. Revolting as it is, this indecent proposal might be expected to awaken in many a needy young man a latent moral infection which, being spared this test, he might have outgrown. Poor human nature is the same the world over, and experiments with more attenuated material would probably produce as damning results in a great number of well-seasoned men; but we do not believe that 60 per cent. of positive reactions can be obtained in any herd, East or West, which does not show gross, naked-eye evidences of moral rottenness.

The general morality of the profession in Chicago can suffer no more damaging commentary than would be involved in proof that this dangerous experiment was necessary. This gangrene could not exist among surgeons, or among specialists of any class, either openly or concealed, except with the equally guilty participation of a much larger number of general practitioners. Unless the amount of visible corruption is so great as to indicate that the rank and file of the profession are more than willing accessories, and ready, if need be, to become open champions of this contemptible traffic, a direct assault upon one known offender would have been at least as effective as this experiment. What Dr. Lydston has demonstrated is the susceptibility or immunity of each individual at the moment when brought into contact with the infectious decoy. He has not established the guilt or innocence of any person.

Perhaps the most remarkable of Dr. Lydston's utterances on the subject is this: "There should be a distinct settlement of the commission question. What is ethical and fair for one is so for all." Wherever a "commission question" is open, no test injection is necessary. The infection is deep and pervasive in any community which tolerates an unblushing advocate of a medical commission business. There is no "commission question" in any healthy mind, nor can any argument for such dirty dividends reach the unguarded outposts of the simplest intelligence, unless the moral sense is first benumbed by either a greed which is abominable, or a need which is desperate, and therefore pitiable.

THE STUMBLING OF A BABE.

Commenting upon this unsavory subject, Dr. Harold Moyer, editor of *Medicine*, relates the story of a rural physician who, having "worked up" a patient to the point of a $300 fee, brought her to Chicago, and for two weeks canvassed the surgeons' offices in search of the highest bidder. He found at last a young man who had done two laparotomies, and was so hungry for a third that he agreed, without having seen the patient, to operate for $75. The thrifty medico went home with $225 of his patient's money. This was the devil's way of completing the devil's own business, and in such wise will all such infamy work its own cure.

Suppose the laparotomized lady could have witnessed this division of spoils—would she have failed to perceive that her "doctor" was a thief, and her "surgeon" but a tottering infant?

THE TREATMENT OF PNEUMONIA.

In another part of the present issue will be found the briefly-expressed views of twenty-one well-known clinicians upon the use of cold in the treatment of pneumonia.

A partial analysis of the testimony, made as nearly as possible in accordance with the language of the writers, gives the following results:

The therapeutic use of cold in lobar pneumonia is—

Very valuable, according to seven observers: Baruch, Folsom, Fowler, Mays, Musser, Stucky, Wilson;

Valuable, according to nine observers: Atkinson, Bowditch, Cutler, Forcheimer, Johnston, Lange, Rochester, Stockton, Tyson;

Useful, according to four observers: Fitz, Hare, Janeway, Smith;

Unsatisfactory, and abandoned, one observer: Eichberg.

MODE OF EMPLOYMENT.

Ice bags, by thirteen observers. Those who do not recommend ice bags are Baruch, Bowditch, Fitz, Folsom, Fowler, Janeway, Johnston;

Cold wet compresses are approved by seven observers: Baruch, Cutler, Folsom, Fowler, Johnston, Musser, Stockton;

Cold sponging, five observers: Atkinson, Bowditch, Fitz, Musser, Stockton;

Cold plunge or tub, six observers: Atkinson, Folsom, Musser, Rochester, Stockton, Wilson;

The cold sheet is applied to the front of the body by Janeway.

INDICATIONS.

Hyperpyrexia is the only symptom relieved by cold, according to Janeway, Smith and Tyson;

Pain and delirium are also relieved, according to Atkinson, Baruch, Bowditch, Cutler, Fitz, Folsom, Forcheimer, Fowler, Johnston, Mays, Musser, Rochester, Stockton;

The heart and lungs obtain relief from mechanical embarrassment, in the opinions of Baruch, Cutler, Fowler, Hare, Lange, Mays, Musser;

The toxemia is lessened, according to Baruch and Musser.

CONTRAINDICATIONS.

As to contraindications, Musser says they are precisely such as are recognized in typhoid fever. Atkinson, Bowditch, Cutler, Folsom, Smith and Tyson admit practically the same contraindications. Forcheimer warns against the use of ice bags in children. Janeway says that furunculosis may follow the application of cold to the posterior chest. Lange considers marked toxemia a contraindication.

Broncho-pneumonia is mentioned by Forcheimer, Hare, Lange, Rochester, as unlikely to be benefited by cold. Mays employs ice bags in catarrhal pneumonia. The good effects of warm moist applications in this class of cases, especially in children, are spoken of by Forcheimer, Rochester and Smith.

PERIODS OF EMPLOYMENT.

On this point Stucky advises cold applications from the moment of diagnosis until "resolution is well established." Cutler says that the indications for the use of cold "do not extend beyond a few days, perhaps only over a

few hours." Baruch, Bowditch, Folsom, Fowler, Mays, Musser, Rochester and Tyson use cold through the period of pyrexia. Fowler mentions 104° and over as the thermometric indication for cold applications. Tyson applies ice as often as the temperature goes above 100°.

Eichberg alone of the twenty clinicians has abandoned cold applications, having found them unsatisfactory. He uses hot baths in all but anemic or very prostrated patients.

The collected testimony seems to assign to hydrotherapy a very important place in the treatment of lobar pneumonia, and these short utterances, coming as they do from authoritative sources, form a substantial contribution to practical therapeutics.

THE VIEWS OF DR. ANDREW H. SMITH.

Dr. Andrew H. Smith, in the *Medical News* of December 16, advocates the use of creosote in the treatment of pneumonia. He believes that pneumonia could be prevented if persons known to be susceptible would always begin at once to take full doses of creosote on the appearance of those symptoms which are popularly described in the phrase "taking cold."

His use of this remedy is based upon his very interesting views upon the pathology of pneumonia. He lays especial stress upon the double circulation in the lung, that from the left heart, borne in the nutrient vessels, and maintaining its integrity during the whole course of pneumonia, and that from the right heart which becomes thrombotic throughout the affected area.

This arrangement of closely adjacent double circulating channels removes pneumonia, he says, "out of the category of diseases for which analogous conditions can be found in other parts of the body." The pneumococcus is the essential pathologic factor, but it does not excite inflammation, the elements of perverted nutrition, necrosis, interstitial deposits, obliteration of vessels and new formations being absent. The process, he says, is a germ culture going on in each air-cell, as in a tiny test tube, on a special medium supplied by the functional blood-vessels. This bacterial growth is the essence of the pathology of pneumonia, and the mechanical and chemical results are but more or less serious epiphenomena. The extent of the bacterial growth is limited, partly by exhaustion of the medium, partly by the formation of pneumic acid, inhibiting growth, and partly by the development of an antitoxin. Crisis occurs promptly upon the arrest of growth of the pneumococcus, because the nutrient vessels permeating the consolidated area, but not participating in or suffering from the disease process, are ready at once to assist in removing the exudate and restoring the functional blood channels.

From this central idea that "the beginning of pneumonia is the lodgment of the pneumococcus in the air-cell" he reasons that the symptoms and signs upon which we ordinarily base the diagnosis of pneumonia really indicate a very advanced stage of the disorder. Antimicrobic treatment is nevertheless valuable, since it is possible to charge the blood with a substance which, being borne to the margins of the consolidated area, will prevent the further growth of the bacillus. Besides its accessible situation in the lung, he considers the known cultural peculiarities of the pneumococcus, its brief existence under laboratory methods, and its sensitiveness

to acids. He cites the successes in the treatment of pneumonia claimed by various authors for calomel, chloroform, the salicylates, and creosote. Of these, Smith strongly prefers creosote in the form of the carbonate, creosotal. He takes occasion to condemn the use of digitalis in those cases marked by cyanosis and dilated veins, where life is threatened chiefly by the mechanical obstruction. He says that in his experience "blueness and digitalis go hand in hand."

His remarks upon accessory treatment are very brief, comprising, first, stimulation of the emunctories; second, sustaining the heart by stimulation and hydrotherapy; third, relieving the pulmonary condition by vaso-dilators or venesection; fourth, compensating loss of respiratory surface by inhalations of oxygen; fifth, reduction of excessive temperature by cold applications.

ENTERIC FEVER. [*Obs.*]

In a recent study of typhoid fever at the Massachusetts General Hospital during the past seventy-eight years, Dr. R. H. Fitz tells us that between the years 1821 and 1835, 303 cases were entered upon the records as *typhus, enecia, enecia typhus, enecia synochus*, and *enecia cauma*. Later the term typhoid fever was written upon these records, probably after review by the younger James Jackson, who returned from Paris in 1833, deeply impressed with the teaching of Louis and the French pathologists. About the same time W. W. Gerhard reduced the continued fevers observed in the Pennsylvania Hospital to the same common denominator. Since then the study of the pathology of typhoid has gone forward steadily and in a nearly right line, but no effective check has been put upon the invention of names for this very common malady, nor have its clinical features become so well known as to make its identification easy under ordinary diagnoses. While a single type of typhoid fever is quite commonly recognized, other varieties just as usually escape diagnosis. For a long time the term enteric fever satisfied the very elect, and gained a wide vogue among the rank and file of the profession. This appellation, based upon the intestinal lesion, the distinctive mark which the typhoid bacillus, it was believed, never failed to make, served to impress strongly upon the medical mind the clinical picture of typhoid enteritis. Thus, in its day, the term enteric fever had a useful and honorable career. Now that typhoid enteritis is known to be but one, though the most common, manifestation of typhoid infection, the continued employment of the designation, enteric fever, does harm by conferring exclusive distinction upon one aspect of a protean affection.

Editorial Comment.

THE LONG-SUFFERING OF MEDICAL MEN.

Pediatrics.

Scarcely anyone outside the profession can realize the extent to which, in these latter days, the personal solicitation of medical men by representatives of book publishers and drug firms has progressed. Most of us, from a desire not to be uncivil, have thus far submitted to the imposition with what grace we could summon, causing thereby a vast increase in the number of agents, a growing consciousness on their part of owning the entire profession, an office chokeful of useless samples of every possible

and impossible formula, and a damaging loss of the physician's time. We believe that drug men should confine themselves and their advertising matter to the press and the mails.

TRUE FITNESS.

Journal of Medicine and Science.

It is needless to point out that such enlarged opportunities and powers carry with them greater responsibilities and burdens. The medical man of the future must be not alone well equipped in the resources of his art, but also zealous and honest in his every effort. More and more must he strive to discard careless and slovenly guess-work methods of diagnosis, and empiric and shotgun methods of prescribing, and, above all, must he bring to his high calling that sense of responsibility and that nobility and purity of mind without which the practice of medicine can never hope to rise above the low level of a mercenary calling or trade.

HOSPITAL ABUSE.

Journal of the A. M. A.

The question of abuse of hospital privileges is one that has agitated the medical profession for a long time, and it cannot be settled on ordinary business lines. Of all pursuits, that of medicine is the only one that is ever willing and ready to give its services gratuitously when needed by those unable to pay. There is, therefore, all the greater reason why it should be protected from imposition. So general has the use of the privileges extended by hospitals become that what has been cordially granted the public as a charity and an act of philanthropy has come to be viewed by a portion of that same public as a right to be demanded. There is an impression among a portion of the community that the services of hospital physicians are paid for, and therefore that ability to pay professional fees need be no moral bar to application for free treatment. * * * The general public must come to a realization of the injustice of the situation and itself take the steps to secure and apply the proper remedy. The simplest corrective measure would be the interrogation of every applicant for hospital treatment as to his ability to pay for the services of a physician, and we have little doubt that it will be found that, after all, the sense of right and of pride of the community will be reached when it understands that it has been asking and receiving considerable to which it has in no way been entitled.

Book Reviews.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart A. Hare. Volume IV, December, 1899. Philadelphia and New York: Lea Bros. & Co.

This volume begins with a chapter by Charles G. Stockton on diseases of the digestive tract and allied organs, the liver, pancreas, and peritoneum. The great amount of literature upon these subjects has been well digested,

and the results presented in an interesting manner, in a chapter of seventy-six pages.

A section on genito-urinary diseases in the male, and syphilis, is contributed by William T. Belfield. Of the fifty-four pages in this section, twenty are devoted to the bacteriology of the urethra and bladder. The importance of the subject and its manner of presentation fully justify its prominence in this short article. Hematuria, renal insufficiency, catheterization of the ureters, and chronic prostatitis and enlargement are also treated at some length.

J. C. Bloodgood contributes a profusely illustrated article, of a hundred and twenty pages, on fractures, dislocations, amputations, surgery of the extremities, and orthopedics. The article opens with a consideration of surgical shock, operative technique, and infections. Almost all of the fifteen pages devoted to infections are given to the gas-bacillus, twenty-odd cases being briefly related, many of them hitherto unpublished.

In an article upon diseases of the kidneys by John Rose Bradford the portions of particular interest relate to the toxicity of urine, to uremia, and to the chlorides in the urine of pneumonia.

A short chapter on recent advances in physiology is given by Albert P. Brubaker.

An article on anatomy by Frederic Henry Gerrish is devoted entirely to anatomical nomenclature.

A short, but very interesting, paper by Henry B. Baker treats of the hygiene of neuralgia, gout and rheumatism, and of typhoid fever.

The volume concludes with a Practical Therapeutic Referendum, by E. Q. Thornton, in which the animal extracts may be found on every page.

——— F.

The Hygiene of Transmissible Diseases. By A. C. Abbott, M.D., Professor of Hygiene and Bacteriology, and Director of the Laboratory of Hygiene, University of Pennsylvania. Philadelphia: W. B. Saunders, 925 Walnut street.

This handy volume of 303 pages is written in the author's well-known lucid style, and contains most of the latest positive knowledge concerning the modes of transmission, and the means of prevention, of those diseases which are known to be transmissible. The introduction (brief, as it should be) gives a few of the most striking illustrations of the subjugation of communicable diseases. In a chapter of thirty-five pages the author has succeeded in treating, with sufficient clearness and fullness, the causation of disease. This chapter is illustrated by diagrams and tables, admirably selected, and not too numerous.

The section on the transmissible diseases emphasizes the knowledge upon which preventive measures must proceed. Under typhoid fever will be found concise accounts of the best studied epidemics. There is a particularly interesting and well illustrated account of the Philadelphia outbreak in the winter of 1897-98. Other diseases treated in this section are cholera, dysentery, tuberculosis, croupous pneumonia, diphtheria, cerebro-spinal meningitis, influenza, bubonic plague, venereal diseases, leprosy, tetanus, anthrax, glanders, actinomycosis, smallpox, chicken-pox, measles, scarlet fever, whooping cough, mumps, malarial fever, yellow fever, dengue, typhus, relapsing fever, rabies. F.

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DIETETICS OF BREAD AND BUTTER.

By John C. Hemmeter, M.D., Phil.D.,
Professor in the Medical Department of the University of Maryland, and Director of the Clinical Laboratory.

READ BEFORE THE MARYLAND PUBLIC HEALTH ASSOCIATION, NOVEMBER 22, 1899.

Bread belongs to the oldest and most important food substances of the human race. It seems that this food was first prepared by the Egyptians, and then brought to Greece and Rome, and by the latter people was extended to the Germanic races. The most widely-used food of the old Hebrews was bread. The rich Hebrews ate bread made of wheat flour; the poor, bread of barley flour. It appears also that the Hebrews made bread of a mixture of beans and flour made from cereals. During the exodus, whilst in the desert, bread was replaced by manna, which, according to the description in the Bible, was a thin, fine, delicate and tender substance, white like frost, and consisting of layers. The taste was that of cake baked with honey. This substance was crushed in mortars, cooked in pots or baked in form of cakes. The manna with which we are familiar today is produced by the sting of an insect of the branches of the tamarisk trees, but it cannot be crushed nor ground up. There are many varieties of manna; some, like that gained from the manna ash, or flowering ash (*Fraxinus ornus Lin*), is the concrete, saccharine exudation of these trees gained by incising the bark.

In making the bread, a little butter or lard, salt and yeast and considerable water, either by itself or in milk, are added to the flour. The yeast causes the carbohydrates (sugar, etc.) to ferment, yielding alcohol and carbonic acid in the form of gas, which makes the dough porous. In the baking, the alcohol is changed to vapor and the carbonic acid is expanded, making the bread still more porous, and both are mostly driven off. Part of the water escapes with them. The amount of sugar and other carbohydrates lost by the fermentation is not very large, generally 1½ to 2 per cent. of the weight of the flour used. With the increase in the proportion of water in the bread as compared with the flour, the proportion of nutriment is diminished, but the addition of shortening and salt brings up the fat and minerals in the bread, so that the proportions are larger than in the flour. In practice, 100 pounds of flour will

make from 133 to 137 pounds of bread, an average being about 136 pounds.

The oldest method to start the fermentation in dough was to add leaven to it. This is an old dough which has already become acid from fermentation, and contains not only yeast, but a large variety of bacteria, which are capable of effecting a very peculiar and characteristic acidification of the bread. Leaven has been replaced by yeast and compressed yeast. These fermenters break up the sugar of the flour into carbon dioxid and alcohol. In the dough itself a ferment is contained, called *cerealine*, which transforms starch into sugar, thus keeping up the fermentation. Good bread can only be obtained when the flour has a sufficient percentage of gluten. The largest part of the proteid or albuminous constituents of the wheat is contained in the so-called gluten, which is a mixture of three albuminous substances, insoluble in water. These substances are gluten fibrin, gliadin and mucedin.

If there is a preponderance of gliadin, then the bread gluten becomes tough, and if there is a surplus of mucedin the bread gluten becomes too soft. Bread gluten causes the proper elasticity of the dough and offers resistance to the little bubbles of carbon dioxid, so that the bread can become uniformly distended and light. Unfermented bread has been recommended, because fermentation does not always progress uniformly, and much of the carbohydrates is lost during this process.

Liebig recommended the addition of ammonium carbonate to the dough. This salt evaporates and decomposes at a high temperature, thus loosening up the dough. Sodium bicarbonate and dilute hydrochloric acid has been used, and the carbon dioxid produced by this reaction utilized to loosen up the dough. Both chemicals thereby produce sodium chlorid. Neither of these methods have proved practical. Horsford's baking powder consists of an alkaline powder (sodium bicarbonate and potassium chlorate) and an acid powder (acid calcium phosphate and acid magnesium phosphate). If the fact is regarded that unfermented bread is cheaper, it still has the advantage of being capable of a much more rapid preparation. Recently loosening up or distention of the dough by pure carbon dioxid gas has been attempted. This undoubtedly is the least objectionable method. The palatability and taste of the fermented bread is undoubtedly an advantage, for in the fermentation not only carbon dioxid and alcohol are produced, but a series of by-products which have a decided influence on taste. Attempts have been made to regain the alcohol which is evaporated in the bake oven from the bread, but so far without very marked practical results. The alcohol which is lost in this manner has been estimated for London alone to amount to 13,000,000 liters (a liter is a little more than a quart) annually, representing a value of from $1,500,000 to $2,000,000.

The heat of the bake oven amounts to from 170° to 210° C., but the temperature in the center of large loaves of bread rarely exceeds 100°; but by this the main mass of mico-organisms of the dough is killed. All the albuminous substances of the bread, ex-

cept a portion of the gliadin, are coagulated. In the fermentation of bread from 1 to 4 per cent. of the dough is split up into carbon dioxid and alcohol. The latter evaporates, so that in the completed bread not more than 0.2 per cent. of alcohol is found. When bread is kept for a while it becomes stale. This has been explained by the loss of water through evaporation, which, however, cannot be the only cause of this process, because old bread can be made fresh again by simply warming it up (Boussingault). But after the percentage of water in the bread has been reduced to 30, warming up the bread will no longer make it fresh again. A strange thing in the freshening up of stale bread by warming is the fact that it actually loses still more water. Boussingault assumed that there was a molecular change in the bread which caused its becoming dry, and Horsdorf believed that in rewarming the bread the gluten gives its water up to the hardened starch granules.

Flour, such as is used by bakers, is now purchased in the Eastern States at not over four dollars per barrel. This would make the cost of the flour in a pound of bread about one and one-half cents. Allowing one-half cent for the shortening and salt, which is certainly very liberal, the materials for a pound of bread would cost not more than two cents. Of course, there should be added to this the cost of labor, rent, interest on investment, expense of selling, etc., to make the actual cost to the baker.

Very few accurate weighings and analyses of baker's bread have been made in this country, so far as I am aware, but the above statements represent the facts as nearly as I have been able to obtain them from the investigations conducted under the United States Department of Agriculture.

The average weight of a number of specimens of ten-cent loaves purchased in Middletown, Conn., was one and one-quarter pounds. This makes the price to the consumer eight cents per pound. The price of bread and the size of the loaf are practically the same now as when flour cost twice as much.

The cost of bakers' bread is a comparatively small matter to the person who only buys a loaf now and then, but in the Eastern States and in the larger towns throughout the country many people, and especially those with moderate incomes and the poor, buy their bread of the baker. Six cents a pound, or even half that amount, for the manufacture and distribution seems a very large amount.

In the large cities competition has made bread much cheaper, but even there the difference between the cost of bread to the well-to-do family who bake it themselves and to the family of the poor man who buys it of the baker is unfortunately large.

The following is a determination of the relative increase of the cost of nutrients in the flour and in bread, the exact weight and market cost of the materials, as well as the weight and selling price of the bread ("Bread and Bread-Making," United States Department of Agriculture):

EXPERIMENT NO. 1.

181 pounds of flour equal 256 pounds of bread.

100 pounds of flour equal 141.5 pounds of bread.
Cost of 100 pounds of materials—flour, butter, lard and sugar.$2.28
Value of bread from 100 pounds of flour..... 5.86

EXPERIMENT NO. 2.

149.75 pounds of flour equal 217 pounds of bread.
100 pounds of flour equal 144.8 pounds of bread.
Cost of 100 pounds of flour, plus butter, lard and sugar.....$2.56
Value of bread from 100 pounds of flour..... 6.08

The first important point shown by this work is the relation of the weights of bread to the weight of the flour used. In experiment No. 1, 100 pounds of flour made 141.5 pounds, and in No. 2, 144.8 pounds, or on an average 143.15 pounds.

In the second place, it is shown that 100 pounds of flour, which cost $1.95, plus the usual amount of other materials added, which cost on the average forty-nine cents, making a total cost of $2.44, will produce bread sold for $5.97; that is, making the materials into bread has increased the cost $3.53. Stated in another way, the actual nutrients that would cost $1 in the form of flour, lard, butter, yeast, salt, etc., would cost $2.49 if bought in the form of bread; that is, the consumer must pay $1.49 for making materials that cost $1 into bread, and for distributing and selling the bread.

It is true, however, that the flour and the other materials used cost less to the baker, who buys at wholesale, than to the individual consumer, who buys in small amounts at retail. The data, however, are worthy of consideration by all consumers.

One bushel of wheat (sixty pounds) will make about forty-four pounds of flour; one barrel of flour is, therefore, equivalent to 4.5 bushels of wheat. The producer receives, at sixty-five cents per bushel, $2.93 for wheat equivalent to one barrel of flour. The baker pays approximately $4 for the flour. The difference, $1.07, or 40 per cent. of the first cost, plus about seventy-two pounds of by-products, viz., bran, middlings and coarse flour, worth at present prices fifty-four cents, represents the charges of manufacturing and carriage to the baker. The baker manufactures the flour into bread, adding lard, etc., worth about ninety-six cents, and the consumer pays $10.74 for the bread produced. The difference, representing the charges of the baker, or the increase in the cost of nutrients between the flour and the bread, is $5.78, or 116.5 per cent. In other words, $100 worth of flour and other raw materials are made into bread which sells for $216.50.

It would seem, therefore, that the increased cost of nutrients, due to the transformation taking place between the producer and consumer, are chargeable in greater measure to the baker than to the miller.

These facts having been derived from actual experiment, it remains for the consumer to determine whether, under his conditions, it will be more economical to purchase the bread or to purchase the flour and other materials and to incur the other expenses necessary in the baking of bread at home.

No one can tell how long bread and butter have been used as a dietetic combination, but it is probable that the combination is very nearly as old as the use of bread alone, because butter was made from milk as early and by the same people which have been mentioned in the early preparation of bread from wheat. In his excellent physiological work, "Die Arbeit der Verdauungsdrüsen," Prof. J. P. Pawlow has shown that fats inhibit and sometimes may arrest the secretion of HCl in the stomach, but, at the same time, stimulate the secretion of the pancreas. Here the most modern physiology has given an instructive explanation of the instinct by which the human race has for ages been led to associate bread and butter. We all know that fats cannot be digested very well in an acid medium. It is also known that carbohydrates, such as bread, which contains on an average between 50 and 60 per cent. of starchy matter, cannot be digested very well in acid medium. Fatty foods are difficult to digest, and those afflicted with weak stomachs must avoid them. If fat is present in the gastric chyme to any considerable extent it arrests the secretion of acid gastric juice in its own interest, and in that way impedes the digestion of the albuminous or proteid bodies. For that reason the combination of fatty and albuminous food is difficult of digestion, and only agrees with people who have a strong stomach and an intense appetite, the explanation being that the albuminous food requires an acid medium for its solution in the stomach, and actually stimulates the acid secretion (Hemmeter, "Diseases of the Stomach," second edition, article on "Hyperacidity"), whereas the fats require an alkaline medium, and depress the acid secretion. The combination of bread and butter is not difficult of digestion, because the bread contains comparatively little proteid or albuminous matters—from 6 to 12 per cent. on the average—and, therefore, it requires little acid for its digestion; hence the fat (butter), in depressing the acid secretion, favors the transformation of the large percentage of starch in the bread into maltose and dextrose. On the other hand, the fat is a stimulant to the secretion of the pancreas, and thus an abundance of ferments is secreted into the duodenum and thus secures the digestion of the starch as well as the albumen and fat. Fat taken alone is, as a rule, not indigestible, because it does not interfere in that case with the digestion of other substances. There is no conflict between the various chemical constituents of the food in this instance.

In those cases in which an excessive activity of the gastric glands has led to hyperacidity, fat should be used as a dietetic medication, because it depresses the secretion of the acid. This scientific explanation of the synergistic action of bread and butter is one of the first steps in scientific dietetics. As scientific men occupy themselves more and more with such questions we hope that dietetics may be lifted from empiricism to a more exact science. It is to be regretted that comparatively few men with scientifically trained minds have occupied themselves with dietetic questions in the laboratories. There can be no more promising and useful field of work. The harvest is plenteous, but the laborers are few.

A CASE OF PANCREATIC CYST.

By Frank Martin, M.D.

READ BEFORE THE UNIVERSITY OF MARYLAND MEDICAL SOCIETY, NOVEMBER 21, 1899.

ACCORDING to Dr. Maurice H. Richardson's article in Dennis' "System of Surgery," "cysts of the pancreas result (1) from obstruction by calculi, with attendant changes in the gland parenchyma; (2) from obstruction by cicatricial contraction of the duct; (3) obstruction by displacement of the pancreas, and (4) from trauma.

"The cause of pancreatic cysts cannot always be made out, even after exploration. Calculi have in rare instances been found and removed. The fact that cysts of the pancreas disappear after incision and drainage throws some doubt upon the statement that cysts are always caused by obstructions, for if this were true a permanent pancreatic fistula would result in these cases. The wall of the cyst is found to be thick when the obstruction has existed for a long time, and thin in cysts that develop rapidly. Senn maintains that dilatations do not take place until the gland is atrophied. Origin from the tail end of the pancreas appears to be the most frequent.

"These cysts vary in size and shape. They are usually globular, at times attain an enormous size, and whatever the situation of the obstruction the cyst soon fills more or less space in front of the pancreas."

Although cysts of the pancreas are rare, Senn has reported eighteen cases, and, according to Maurice H. Richardson of Bosson, "since 1893 reports of fourteen operated cases have been published, besides four cases in which the pancreatic origin was questionable." Richardson reported three cases in 1892. Out of the fourteen cases, twelve recovered. Enucleation was performed in two cases—all the others were drained. In St. Thomas' Hospital Report, 1893, two cases of enucleation were reported. I know of but one case reported here in Baltimore, which case was operated upon by Prof. L. McLane Tiffany about one year ago. Free opening of the abdomen and drainage was resorted to in this case, with a good result, no fistula remaining as far as I know. The case was reported in the *Medical Record*, August 6, 1898. I am told that several cases have been treated by incision and drainage at the Hopkins Hospital. I have not seen any report of them.

"Sweifer found in all the literature thirty-one cases treated by incision and drainage and twelve by extirpation. Of the former, two died, a fistula persisted in nineteen, resulting fatally in five. Of the twelve cases of extirpation, one died from hemorrhage.

"In three of the genuine cases collected since 1893 the origin was traumatic. Diabetes is not often observed in these cases, having been noted in three cases, and in one it persisted.

"Weir reports a case caused by a calculus and cured by abdominal massage, by which the stone was dislodged. This is, of course, a questionable case. A case is reported as caused by impaction of an intestinal round worm in the duct. Operation was successful.

"The symptoms of pancreatic cyst are chiefly local. Indefinite pain or discomfort may call attention to the epigastrium even before a swelling is perceptible. Pancreatic calculi, with the resulting cyst, may cause no subjective symptoms. Intestinal digestion may be somewhat interfered with if the pancreatic fluid is entirely shut off from the duodenum. In some cases the presence of sugar in the urine tends to confirm the pancreatic origin of the epigastric cyst. The tumor itself is characteristic; it fills more or less the space occupied by the pancreas, pushing forward the stomach, gastrocolic ligament and transverse colon, causing a more or less round symmetrical swelling in the epigastrium. In such cases the stomach is above the cyst. Cases are reported where the cyst has appeared above the lesser curvature of the stomach and pressed the stomach downwards. The tumor, as a rule, is so tense as to seem solid, and the fluid is confined under great pressure. Firmness and tension are said to be more characteristic of a cyst connected with the pancreas than of any other fluid collection in this region. This tension is produced by the fluid being firmly grasped by the hypertrophied fibrous wall of the dilated canal."—Dennis' "System of Surgery."

Diagnosis is made by exclusion and by the position and characteristic tension of the cyst. To determine the nature of the tumor aspiration has been suggested, but great danger attends such a procedure. Had it been resorted to in the case which I report the needle would have penetrated both walls of the stomach before reaching the cyst. Dilatation of the stomach by means of air will often show the retroperitoneal situation of the tumor. "Sanguinous cysts of the peritoneum are often confused with pancreatic cysts."

"The most important consideration connected with the treatment of pancreatic cysts is the decision between total extirpation and drainage. Removal of the entire cyst, if it were possible, would be the ideal operation for the relief of this condition. 'In most instances, however, the cyst, being practically nothing but the thickened walls of a dilated pancreatic duct, intimately connected with and adherent to all adjacent structures, cannot be removed without subjecting the patient to unjustifiable risk.'

"The technical difficulties in the way of extirpation are in most cases insurmountable. A cyst projecting through and from the body of the pancreas, connected with it by a comparatively small pedicle, might be successfully extirpated. The feasibility of this

procedure can only be demonstrated at the time of the operation. When enucleation seems practicable it should be attempted. The chief danger of enucleation is hemorrhage from injury to surrounding vessels. Senn says that total extirpation invariably results in death, although it has been done with success.

"The alternative, incision and drainage, can be relied upon in all cases in which extirpation is not practicable. The objection to drainage is the occasional persistence of the pancreatic fistula and the malnutrition which results from want of pancreatic fluid. This operation with drainage presents no great difficulty." The abdomen is opened immediately over the cyst, the incision extending from below the ensiform to the umbilicus being made either directly in the median line, or, as I prefer, through the left rectus sheath. The fibers of this muscle are separated and the peritoneum exposed and opened. The opening is then enlarged sufficiently to permit thorough exploration, when, if enucleation is found to be possible, it should be done; if not, an opening is made through the gastrocolic ligament, exposing the cyst wall behind, which is covered by the posterior parietal peritoneum. After exposing an area over the cyst wall measuring vertically three or four centimeters, and the same transversely, the general peritoneal cavity is packed off with gauze for protection. A sterile trochar is then thrust into the cyst, and, after complete evacuation, the cyst wall is stitched to the parietal peritoneum and the opening in the abdominal wall is closed. I should consider a method of aspirating without previously opening the abdomen unsurgical and dangerous.

Though the pancreatic fluid is usually sterile, it is not invariably so; hence great care must be taken not to infect the exposed peritoneum. In one of Richardson's cases, where complete recovery ensued, the cyst reappeared after some years and caused death by a perforation into the stomach.

I had hoped to be able to bring before you tonight a patient upon whom I operated for a pancreatic cyst nineteen days ago, but she is a young woman who preferred not to be exhibited, and I did not like to insist upon it.

I saw the patient with Dr. Hall on the evening of October 26, 1899 (a little over three weeks ago), and obtained this brief history:

A young woman, aged twenty-seven; married; had her first confinement about two years ago. I found her suffering with intense pain in abdomen, which had been more or less persistent for two weeks. She was vomiting excessively, and this, I was told, had been going on for the same length of time, but both pain and vomiting had grown much worse during the last few days, so that now she could retain nothing. Temperature (mouth) was 102.8°, pulse 130, tongue dry. I found a large palpable mass filling up the upper quadrant of the abdomen and visible when the abdomen was uncovered. This enlargement had not been noticed by patient until I called attention to it in my examination. I asked how long

it had been there, and she told me she did not know there was any enlargement. Attempting to palpate the mass gave considerable pain. There was marked tension of the abdominal muscles, so much so that it was impossible to map out the enlargement or to determine whether the abdominal walls were adherent to the mass. The feeling imparted by the sense of touch strongly suggested such a condition. The diagnosis of abscess had been made by a physician in attendance prior to Dr. Hall's seeing patient, and the abdomen was painted over with iodine. The patient's previous history was that she had suffered with attacks of acute indigestion for some years, the intervals varying from a month to three or four months. These attacks were very acute and severe, but would only last two or three days, and after considerable vomiting she would finally be relieved and go on with her work as usual. The last attack occurred about four months ago, but since that time has had considerable discomfort and indefinite pain located in the epigastrium. Occasionally her corsets would feel so tight as to necessitate their removal. On the following morning (October 27) she was admitted to the hospital.

Examination of urine showed large quantities of albumen and tube casts, but no sugar. In the first twenty-four hours after entering only about 260 c. c. of urine were voided. Her bowels were freely moved. She was given diuretics, and the renal secretion was in a few days increased from 260 c. c. to nearly 2000 c. c. The albumen and tube casts disappeared. Her leucocyte count was normal, and soon after entering the hospital her temperature dropped to normal. Pancreatic cyst was then thought of. The tumor did not move up and down with respiration. The abdominal tension had somewhat passed off and the cystic nature of the tumor could now be determined beyond doubt. It extended down from the ensiform cartilage to the umbilicus, and measured about nineteen centimeters in length and fifteen centimeters across. The diagnosis was made chiefly on the tension, the position of the tumor and absence of such symptoms as would be present in abscess. In these cases the examination of the urine and stools does not help much in arriving at a diagnosis, except that where glycosuria is found it helps to confirm the diagnosis. When the abdomen was opened two or three days after she had entered the hospital her kidneys were acting much better and her general condition was improved. The operation was done by making an incision from the ensiform cartilage to the umbilicus, separating the fibers of the left rectus and opening the abdomen freely for that distance. I opened freely in order to do, if possible, a total extirpation. I found that this was impossible. The cyst was adherent to all the adjacent parts, and so I packed off the abdomen and with a sterile trochar aspirated the fluid into a sterile flask. The amount of fluid was about 2000 c. c. Dr. Latane is making a study of the fluid. I stitched the cyst wall, after removing a portion for examination, to the parietal peritoneum, and closed up the abdo-

men, leaving gauze drainage in the cavity of the cyst. This has been removed, and now there is an open fistula which is still draining pancreatic fluid, but rapidly closing up. The abdominal wound closed under one dressing. The patient is comfortable, vomiting has ceased and no reaction followed the operation.

Dr. Latane reported as follows:

"The fluid from this cyst was obtained in a sterile condition, and all the experiments were carried out on sterile media. We found that the fluid was quite potent. Both fibrin and disks of egg albumen were dissolved, but we have been unable so far to get any true peptone. We may be able to demonstrate that later; certainly it goes to the stage of albumose. Then as to its action on starch: a 1 per cent. solution was mixed with an equal part of the fluid, and the iodine reaction persisted for between one and one and one-half hours. After that time it disappeared and sugar was demonstrated to be present. Milk treated with an equal bulk of the fluid was coagulated into a clot of firm gelatinous consistence when cooled. This reaction is rather peculiar. It is claimed that the pancreatic fluid has a milk-curdling ferment, but just what the substance is has not been worked out. On heating the curd becomes fluid, but solid again on cooling. In experiments done with the oils and the fluid there was found to be very little, if any, steapsin. After twenty-four hours in the incubator a trace of fatty acids was present.

"The fluid has all the characteristic properties of the pancreatic secretion."

Syphilis from Dental Instruments.—W. L. Baum, in the *Journal of the American Medical Association*, reports five cases of syphilis due to infection by means of dental instruments. The first case was that of a dentist, aged twenty-eight, who presented himself suffering with a papular eruption, and a general indolent adenitis. He denied venereal infection, and was unable to connect his present trouble with any antecedent sore except a small, stubborn ulcer on the right index finger, where he had accidentally scratched himself with a dental tool while filling some teeth for a patient.

The second case was that of a bookkeeper, whose primary sore occurred at the site of an injury to his tongue by a dental tool.

The third was a young man of twenty-two, who came to the Chicago Post-Graduate School with a papillary syphilide. He had cervical adenitis, and a sore upon the mucous surface of the lower lip, where he had sustained a slight injury from a dental instrument.

The fourth was a woman of thirty-five, married to a healthy man, who had typical symptoms of syphilis beginning with a sore upon the tongue, due to a wound by a dental instrument.

The fifth was an express-driver, aged forty-seven, whose primary sore was caused by a wound of the mucous surface of the upper lip caused by a dental tool.

POISONING BY EUPHORBIA MARGINATA OR "SNOW ON THE MOUNTAIN."

By Arthur Wegefarth, M.D.,
Baltimore.

THE *Euphorbia marginata* is extensively cultivated as an ornamental plant in city yards. The seeds are quite usually exchanged among neighbors, and are therefore often accessible to children. No case of poisoning by this common plant has hitherto been recorded, so that a history of these cases which recently occurred under the author's observation will be of some interest.

The following information concerning the euphorbias has been obtained from publications of the Division of Botany of the United States Department of Agriculture:

"The spurge family, of which the euphorbias constitute the typical genus, is represented in the United States by about eighteen genera and over 200 specimens, many being widely and abundantly distributed in the colder as well as in the hotter sections of the country, though the species are more numerous in the latter. All contain a milky juice which is more or less acrid and irritating to the skin. Several exotic representatives of the order, such as the Brazilian physic nut (*Jatropha urens*), the European dog's mercury (*Mercurialis perennis*) and the East Indian *Croton tiglium*, the source of croton oil, are well known to be violent poisons. The deadly manchineel (*Hippomane mancinella*) occurs in Florida as well as in the West Indies, and the castor-oil plant (*Ricinus communis*) is largely cultivated and introduced in the Southern and Western States. Many species are known to produce disagreeable skin eruptions, either on account of their stinging hairs, as in the Southern spurge nettle (*Jatropha stimulosa*) and in *Tragia nepetefolia*, or by their acrid juice. Some, such as *Croton setigerus* of California and *Euphorbia marginata*, furnish a deleterious honey, and some are used as fish and arrow poisons. * * * The spurges maintain the general reputation of the family as poisonous plants in all of the ways indicated above, and additionally by overdoses when used as a purgative, by poisoning cattle that eat of them or drink water into which the plants have been thrown, and indirectly, it is claimed, by poisoning the milk of animals that have fed upon the various species. Gardeners are sometimes poisoned while trimming the cultivated plants (poinsettias). Spurge poisoning is due to two or three constituents which are, perhaps, common to all the species, but the subject has not been very closely investigated, and the poisons are not well known."

Johnson's "British Poisonous Plants," published in 1856, says: "In the different species of spurge the milky juice has a burning flavor, and blisters the tongue and even the external skin when applied to them.

"Under such circumstances, it is surprising that these plants should ever be eaten by mistake, and yet two cases have been recorded in which death resulted from species that are among the most common of our garden weeds. In one instance a boy, six years of age, died in consequence of eating the petty spurge (*Euphorbia peplus*), being seized soon after with vomiting, diarrhea, spasms, inability to swallow, and after distressing and painful symptoms. In the second, a lad between thirteen and fourteen years ate, in a spirit of thoughtless daring to his school-fellows, several plants of the sun spurge (*Euphorbia helioscopia*), dying in three hours under similar symptoms. In both instances the mouth, throat and stomach were found to be highly inflamed and in parched condition."

The following is a quotation taken from White's "Dermatitis Venenata," published 1887:

Of every species Londan says the juice is so acrid as to corrode and ulcerate the body wherever applied. Of *E. resinifera*, from which the official tincture of enpherburn is obtained, Pliny and Dioscorides, according to the *Dispensatory*, describe the methods of collecting juice so as to prevent irritation of the hands and face. This substance is used as a plaster to prolong suppuration. Van Hasset states that the juice is used by quacks to remove warts and freckles and for the purpose of depilation, and that the application of the juice, powder and extract produces not only erysipelatous, pustular and phlegmonous inflammation, but even gangrene. In one case mentioned the whole abdominal wall became the seat of gangrene."

Of our native species, Bigelow says that the juice of several was used in his day to destroy warts. Gray describes them all as containing acrid, poisonous juice. The most active of them are *E. ipecacuanha* and *E. lathyris*. The first of them, commonly called snake milk, according to Bigelow has been used for blistering purposes.

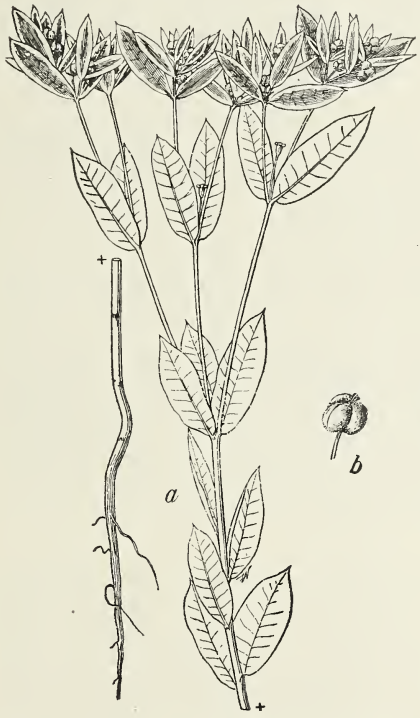
Mr. Chaney states that the juice of *E. ipecacuanha* is quite troublesome to many who collect or handle it, and Bazin says that the dust of *E. lathyris*, growing both in Europe and this country, causes redness, painful swelling and vesicles upon the workmen employed in handling it.

V. K. Chestnut, assistant in the Division of Botany of the United States Department of Agriculture, describes "*Euphorbia marginata*," or "Snow on the Mountain," as follows:

"An annual plant two to four feet high, differing most conspicuously from the preceding species in its more flexuous and less branching habit, and in having its upper leaves broadly margined with white. Its general aspect is far more pleasing to the eye, and

on this account it is more frequently gathered for decorative purposes. This spurge is a native weed of the great plains from Montana to Mexico, and is spreading eastward rapidly to Louisiana and through Southern Minnesota and Missouri to Wisconsin, Illinois and Indiana. It is cultivated considerably for ornament, especially in the Northern Atlantic States, where it has frequently escaped from cultivation. It has recently been introduced as a weed into Germany.

"*Poisonous Property.*—The poison of this plant reaches the stomach, so far as known, only through the eating of honey derived from its flowers. Large quantities of fall honey are annually made unsalable in localities where the plant grows in great abundance. The honey is hot and disagreeable to the taste, but does not appear to be a very serious poison, its effects being confined mostly to vomiting and purging. The milky juice when applied to the skin very often causes an itching inflammation, accompanied by pimples and blisters, which last for several days. The general effect is much like that observed in rhus poisoning, for which it is sometimes mistaken. This blistering action is, in fact, so decided that a few stock-raisers in Texas use the juice to brand cattle, it being held by them to be superior to a red-hot iron for that purpose, because the scar heals more satisfactorily."



"Snow on the mountain" (*Euphorbia maginata*): *a*, whole plant, one-third natural size; *b*, seed capsule, natural size.

CLINICAL HISTORY.

On October 12, 1899, I was called to see three children who, shortly after having eaten some seeds of "Snow on the Mountain," had all been taken very sick. The youngest, a boy about five years of age, was in a state of collapse; the pulse was very slow, the extremities were cold, the head thrown back, the thumbs drawn in, fingers clutched, and the eyes drawn upward. These well-marked nervous symptoms did not result in convulsions. The lad was not unconscious, but answered questions. He vomited freely, but up to this time his bowels had not been moved. He also com-

plained of a burning in the mouth, throat and stomach, and had a constant desire to drink water. Later the bowels became very loose.

Another child, aged about seven years, was able to walk around the room, but vomited every few minutes. At first she threw up the contents of her stomach, and afterward bile. Her symptoms were headache, burning in the mouth, throat and stomach, and great thirst.

The third child, a girl twelve years of age, had similar but less severe symptoms.

Immediate attention was directed to the youngest child. A hypodermic of strychnia was given and hot bottles were applied to the extremities. Large draughts of warm water were given to encourage vomiting and bring up whatever remained in the stomach. Calomel and soda were given in small doses, and bromides for the nervous symptoms. Several doses of brandy were also given during the day.

This child remained in a critical condition for six or seven hours, but finally began to improve, fell into a sleep, and awakened with a headache, which lasted through the following day. Three days after the seeds were eaten no sign of the mishap remained except a few small blisters about the mouth.

The other two children received the same treatment, except that they had no stimulants, and they both recovered without serious symptoms. They both had headache on the day after the poisoning.

An account of the poisoning, appearing in the daily papers, attracted the attention of Mr. V. K. Chestnut, botanist of the United States Department of Agriculture, who, after an investigation, pronounced the seeds to be those of the *Euphorbia marginata*, or "Snow on the Mountain," and said that these were the first recorded cases of poisoning by the seeds of this plant.

Epidemic Jaundice.—From time to time outbreaks of jaundice occur in different parts of the country. Recently there has been an epidemic in North Carolina, chiefly in the neighborhood of the towns of Troy and Mt. Gilead. Dr. Thompson and Dr. Blair of Troy state that the outbreak has lasted for nearly three months, and has attacked about 150 persons in a population of 1000. The attack begins with aching of the limbs and back, pain in the epigastrium, and incessant nausea and vomiting. The jaundice occurs early, and rarely persists for more than two weeks. A few cases last for a month or six weeks, and there is one protracted case from Troy at present in the medical department of the Johns Hopkins Hospital, in which the disease has persisted for nearly three months.

Current Literature.

INTERNAL MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

A SIMPLE METHOD OF DETERMINING THE CLINICAL CHARACTERISTICS OF THE GASTRIC CONTENTS.

Hewes (*Boston Medical and Surgical Journal*, 1900, cxlii, No. 1) describes a simple method for the quantitative determination of the gastric contents for use in clinical work.

This method is based on the following modifications of the Töpfer method:

1. The addition of a second test for free hydrochloric acid which could be utilized at the same time as the dimethyl test of Töpfer and serve as a control test to insure a more accurate record on this point.

2. The substitution of the Congo-red test for the alizarin test in the estimation of the total organic acids plus acid salts.

The method, in brief, is as follows: To 5 c. c. of the well-shaken, but unfiltered stomach contents, add a drop or two of a one-half per cent. solution in alcohol of dimethyl-amido-azo-benzol, and then a sufficient quantity of a decinormal solution of sodium hydroxide to just convert the red color into an orange or bright yellow, the end reached being perhaps facilitated by adding also a drop of tropeolin; continue to add the decinormal solution of sodium hydroxide until a drop of the mixture fails to color Congo-red paper; adding a few drops of the 1 per cent. alcoholic phenolphthalein solution, continue to add the decinormal sodium hydrate solution, drop by drop, until a deep red color of maximum intensity appears.

The reading from the beginning (a) up to the end of the first procedure gives the total free HCl; (b) to the end of the second procedure, the total free acids plus acid salts; (c) to the end of the third procedure, the total acidity. (d) By substracting (a) from (b) we have a quantitative estimate of the total organic acids plus acid salts; (e) by subtracting (b) from (c) we obtain the total combined acids (the total combined HCl, when free HCl is present). (f) By adding (a) and (e) we get the secreted hydrochloric acid.

The analysis can be accomplished in ten minutes, requires but a few reagents, and from the findings above practically everything of importance about the acid secretion of the stomach is obtainable, while the simplicity of the method renders it capable of application as a routine means of diagnosis in practice.

TRANSILLUMINATION IN THE DIAGNOSIS OF GASTRIC DISEASES.

Oppler contributes (*Archiv f. Verdauungskrankheiten*, Vol. III,

part 3) an exhaustive article upon the value of transillumination in diagnosis of diseases of the stomach.

After describing in full the instrument he uses (Kuttner & Jacobson's or Meltzing's transilluminating gastric sound, having an intensity of two to four candle-power), and giving in detail the technique of the procedure, the necessity of having the room dark, of having the stomach empty of all food, of emptying the bowels and the bladder, of having the patient in both the prone and the upright position, and of studying the stomach first when empty and then when filled with water, he discusses the light and shadow pictures presented in the normal stomach, and the anatomical reasons for them.

He concludes his article with the results of transillumination in the diagnosis of pathological conditions of the stomach, and his conclusions may be summed up as follows:

1. Transillumination may determine more precisely the position and the consistency of a tumor which is visible or palpable, or it may render probable the presence of a tumor not previously discovered by palpation and inspection.

2. By this method we may also have our attention directed to tumors of the lower portion of the liver and of the spleen, as well as to the position of this latter organ.

3. Increase in the size of the stomach can easily be determined by this method.

4. A slight disturbance of the motor function of the stomach, atonia ventriculi, may be perhaps suspected by the slight difference in size between the transillumination figures of the stomach slightly and well filled with water, and by the fact that by the introduction of a small quantity of water the greater curvature does not rise.

5. If the upper border of the transillumination figure is separated from the lower border of the liver by a dark zone the case is one of gastroptosis.

6. The simple lower position of the greater curvature may signify (a) a physiological megalogastric dilatation, (b) a pathological dilatation, (c) a gastroptosis, (d) a combination of the last condition with one of the preceding two.

7. Abnormalities in the stomach's form and position, as vertical position, and hour-glass form, may in some cases be easily recognized by this method.

Finally, although recognizing in full the value of this procedure, Oppler warns the medical fraternity not to lay too much stress upon it, but to use all methods before deciding upon a diagnosis.

DYSENTERY AND ITS TREATMENT.

EPIDEMIC DYSENTERY.

Eldridge (*Public Health Reports*, 1900, XV, No. 1) contributes an extremely interesting article on the epidemic dysentery of the past twenty years in Japan.

The epidemic began in 1878, and up to 1880 prevailed only in the southern island of Kinshiu; in 1881 it invaded the contiguous island of Shikoko, while in 1882, crossing the western strait, it attacked somewhat severely the southern district of the island of Nippon, thence gradually spreading to the northeast and later northward, "generally moving in the lines of most active intercommunication, until, in 1897, every province of the three larger islands of Nippon, Shikoko and Kinshiu was included in the area of the epidemic," the advance being checked for a time by a mountain chain running from east to west across the island of Nippon. In 1899 the epidemic spread from the last-mentioned island to the northern island of the group, Yezo.

In 1878 the number of cases was 1118, and the deaths 206, while in 1899 these had increased to 125,989 cases and 26,709 deaths.

The two years in which the ravages of the epidemic were more marked than in 1899 were the years 1893 and 1894. In the former year (1893) the number of reported cases was 167,305, with 41,282 deaths; in the latter year (1894) 155,140 cases, with 38,094 deaths. In the whole period of twenty-two years in which this epidemic has raged the total number of cases reported has been 1,136,096 and the number of deaths 275,308, *i. e.*, a mortality of 24.23 per cent. Probably many cases occurring in the rural districts are not reported.

Since 1890 the epidemic has averaged 92,854 cases and 22,345 deaths yearly, *i. e.*, in many provinces between fifty and 100 persons per 10,000 of population were affected—a number sufficiently appalling to warrant the efforts the government is making to stamp out the disease.

So far, however, but little success has attended these efforts, but better results are to be looked for in the near future, when the inhabitants acquire a better understanding of the rules and regulations in force.

As to the etiology and distribution of the disease, all ages and both sexes are apparently equally liable to the disease; low and damp localities are mostly attacked, and the disease has hitherto confined its ravages almost entirely to the summer and autumn months.

Although not spreading with the rapidity of cholera, when the germs have reached a certain locality the epidemic continues until the larger proportion of the population has been affected. After an attack there is apparently a certain period of immunity, although the length of this period has so far not been definitely determined. Some idea of this may be gotten, however, from the fact that in many of the districts the interval between the dates of greatest prevalence is between five and seven years.

Apparently water plays the most important *rôle* in the propagation of the disease, the fact that the chief sources of drinking water in Japan are wells contributing largely to the ease of contamination and infection. Cases have been reported in which the infection seems to enter first at the anus. The rural population is and

always has been more affected than the inhabitants of cities—a condition exactly the opposite of that found in the epidemics of cholera in Japan.

"Plentiful rains increase the violence of the epidemic when it is present, while floods cause its abatement."

The symptoms of the disease vary somewhat in different persons, but, as a rule, after premonitory symptoms of malaise, anorexia and sometimes chills and cramp in the limbs, a diarrheal or dysenteric condition occurs, the former condition rapidly succeeded by the latter in those cases in which the disease does not start from the first as a frank dysentery, with mucous and hemorrhagic evacuations.

As the malady progresses the stools increase in number, reaching sometimes fifty to sixty in the twenty-four hours, associated with tenderness, tenesmus and pain, often of an excruciating character. We may have croupous or diphtheritic infiltration of the intestinal mucous membrane, with discharges of gangrenous odor, or purulent stools after the ulcers have been established.

Usually the descending colon or upper rectum is first affected, the disease thence extending progressively upward. The temperature, usually elevated at first, is generally subnormal after a few days, while the character of the pulse corresponds to the severity of the special case.

Death usually occurs in from seven to ten days, while in some cases it may occur much earlier, with all the symptoms of a profound intoxication. Chronicity is not common, and complications not often met with. The hepatic abscess, so common in amebic dysentery, is apparently never found after this variety of dysentery. The findings at autopsy are in most cases the same as found in acute epidemic dysentery the world over, and perforation is unusual. In the mucous membrane about the ulcers Shiga has found the bacillus to which he ascribes the disease.

The most interesting chapter in relation to this disease is that upon its bacteriology. Ogata, in 1891, isolated a bacillus from the stools of dysenteric patients which produced dysenteriform symptoms and lesions in animals. Celli and Scala, and Celli and Fioca, thought the micro-organism which caused the disease was the bacillus coli communis, perhaps pathogenically modified, and the latter observers prepared a serum which in a few cases seemed to give promise of good results.

Shiga described as the specific cause of the disease a short, rod-shaped bacillus, morphologically very similar to the bacillus typhosus, which he calls the bacillus dysentericus, which shows no active movements, does not liquefy gelatine, and which possesses cultural peculiarities distinct from the bacillus coli, on one hand, and the bacillus typhosus on the other.

Shiga and Kitsato both conclude that Celli's bacillus is bacillus coli communis (the specimen having been sent by Celli himself), and differs distinctly from the bacillus dysentericus. With his bacillus Shiga has experimented for the past two years upon vari-

ous herbivora, especially horses and sheep, in the hope of obtaining an immunizing serum, this serum being prepared in the usual way. That this serum gives great promise of success may be easily seen from the reports of the cases in which it has been used, although its expense at present militates against the possibility of its general use. So far 266 cases have been treated with the serum, with a mortality of slightly less than 10 per cent., while the mortality in the same hospital, during the same period, of cases of epidemic dysentery not so treated was between 35 and 37 per cent.

DYSENTERY CAUSED BY PROTOZOA.

Quincke (*Berliner klin. Wochenschrift*, 1899, Nos. 46 and 47) contributes an interesting article on enteritis due to protozoa.

The parasites of this kind which up to now have been proven to be the cause of diarrhea and of other manifestations of enteritis are:

(1) Trichomonas intestinalis; (2) cercomonas hominis and perhaps some of the other varieties of monads described by May and Roos, but which, according to Jasonski, are perhaps identical with one of the two forms mentioned above; (3) megastoma entericum, rarely found as the cause of enteritis, but definitely proven to be such in one case of chronic diarrhea by Salomon; (4) coccidia; in this connection Quincke reports an interesting case of chronic diarrhea, with increasing weakness and loss of weight, of nearly two years' duration, due to this parasite, which cleared up under tannalbin and enemata of warm water, this case resembling markedly the cases reported by Baillet and Lucet, and Grassi and Rivolta (cited in Braun's "Die thierischen Parasiten des Menschen," second edition, p. 30); (5) balantidium coli; three cases of diarrhea caused by this variety of protozoa have been described in Schleswig-Holstein, two of which, however, were cases which had acquired the infection elsewhere; (6) ameba coli, of which Quincke makes two sub-divisions—(a) ameba coli felis, the variety which is pathogenic to cats, and (b) ameba coli mitis, which is not pathogenic to this animal.

In connection with the two varieties of this last-mentioned protozoa, he reports five cases, one of which was of extreme interest, in that during life it had been regarded as a case of pulmonary and intestinal tuberculosis, while at autopsy the intestinal lesion was found to be due to the ameba coli, specimens of which were found in the intestinal ulcers.

The clinical picture varied according to the parasite present, the symptoms being less marked in the case of the flagellates, which inhabit the small intestine and give rise to a moderate chronic diarrhea, or in some cases only to a tendency to diarrhea. The balantidium coli and the ameba coli, on the other hand, show symptoms of a catarrhal condition of the large intestine, in more severe cases a dysenteric condition, with thin, pea-soup stools at first, often later containing blood and mucus, due to the formation of ulcers, which Woit (*Deutsch. Arch.*

f. klin. Med., 1897, LX, p. 363) and Dehio (*Petersburg Med. Wochenschrift*, 1898, XV, 36) have described in balantidium enteritis, and Councilman and Lafleur (*Johns Hopkins Hospital Reports*, Vol. II) have described for ameba enteritis.

Of course, after the development of these ulcers the presence in them of the bacteria of the intestinal tract plays a part in the symptomatology of the condition, and renders their cure much more difficult.

According to Woit, the ulcers in the case of balantidium coli often contain none of the parasites themselves, while in the case of ameba coli the protozoa are often found in the tissues at the ulcer's base. As to the source of the different parasites, balantidium is frequently found in pigs, and infection may perhaps take place through sausages; the flagellates are found in pigs, sheep, cats, rats, mice and rabbits, and thus may also be taken in with the food. Various varieties of coccidia are found in the liver of rabbits and in the intestinal epithelium of cattle, dogs, cats and sheep, but it is not known which of these varieties can infect man. The ameba coli felis is found in cats, and perhaps in dogs, while of the origin of the ameba coli mitis nothing at present is known.

Although in some of the cases mentioned above a direct infection, with the encysted form of the parasite, may take place, probably in the great majority of cases the source of infection is polluted drinking water.

TREATMENT.

In the case of the flagellates, which usually are found in the small intestines, castor oil or calomel, often continued for quite a long period of time, can be used with good effect, while in the case of those which make their home in the large intestine this form of intestinal medication must be aided by enemata.

Quincke especially recommends quinine to be given in the enema, although he has also used naphthalin (1 to 2 per cent.), tannic acid (one-half to 1 per cent.), and acetic acid (one-half per cent.) in this connection.

The most essential thing, especially in cases due to the balantidium or the ameba, is an early diagnosis, as before the formation of deep ulcerations a cure is much more likely to be obtained.

Clinically, some of the cases of great chronicity, with marked ulceration, have been mistaken for cases of tuberculous enteritis and the mistake only recognized at the post-mortem examination.

The diagnosis, of course, is to be made by a careful microscopic examination of the stools. The stool should have been passed or taken by rectal tube just previous to the examination, as otherwise the motility, the characteristic which especially facilitates the microscopic diagnosis, is impaired.

In connection with this article of Quincke's the papers of Salomon (*Berliner klin. Wochenschrift*, 1899, No. 46) and Shegalow (*Jahrbuch f. Kinderheilkunde*, 1899, XLIV, p. 425) are of interest. The former reports a case of acute diarrhea coming on very

suddenly, with colic and ten or twelve watery stools a day, due to an infusoria present in great numbers, which Salomon describes in detail with careful sketches, and regards as the megastoma. A few specimens of trichomonas intestinalis were also found in the stools.

Salomon did not succeed in producing diarrhea experimentally with his infusoria in dogs and cats. As many of the patient's fellow-workmen had been affected with diarrhea at about the same time, it was thought probable that the source of the infection was the river water of the Elbe, which they drank unboiled. Further inquiry showed that shortly before the slight outbreak a case of diarrhea of the same kind had been noticed in a woman whose dwelling was on a small stream which flowed into the Elbe, and examination of her stools demonstrated the megastoma. Shegalow's case was one of colitis, in which the balantidium coli was found, and from the study of his case and the cases in the literature he comes to the following conclusions regarding this form of enteritis: (1) The pathogenicity of the balantidium coli cannot as yet be considered as proven in man; (2) the infection can take place through encysted forms of the parasite; (3) the parasite lies in the mucus of the large intestine, but the prognosis is not dependent upon the number of the parasites as much as upon the pathological changes produced by them in the intestine; (4) the best method of treatment is the use of tannalbin and bismuth.

Rennie (*British Medical Journal*, 1899, November 18, No. 2029, p. 1413) gives his experience in Mauritius with magnesium sulphate in the treatment of tropical dysentery.

He gave it in doses of one and one-half to two drachms, with ten drops of aromatic sulphuric acid, cinnamon water and syrup, and found that by its use in acute cases the improvement was marked. In from eighteen to thirty-six hours the dysenteric stools disappeared, and the mortality under this treatment at the military hospital of which he was in charge was *nil* during the six months in which he used it (fifty-six cases were treated), compared to 8 per cent. for the preceding six months (in which forty-one cases were treated), when the old-fashioned ipecac treatment was in vogue.

He continued the magnesium sulphate treatment for some days after the stools ceased to be dysenteric, associated with powders of bismuth salicylate (grs. xv) and benzo-naphthol (grs. x) three times a day. In the chronic cases, however, he got no benefit from this treatment.

PATHOLOGY AND BACTERIOLOGY.

Under the Supervision of Robert Reuling, M.D., Baltimore.

Acute Diffuse Gonococcus Peritonitis. By Harvey W. Cushing. *Bulletin of the Johns Hopkins Hospital*, May, 1899.

As the author rightly asserts, the original *dictum* of Bumm, that gonorrheal processes remain limited to surfaces lined by mucous membrane, is at the present day untenable. Until comparatively recent times it has been doubted that the gonococcus, without the association of the more common pyogenic organisms, was capable of inducing acute general peritonitis. It is now recognized that structures other than those of an epithelial character are liable to invasion by this organism, and, indeed, endothelium seems particularly liable to such infections.

Wertheim was the first to offer valuable clinical and experimental evidence which showed the liability of the peritoneum and other serous membranes to gonorrheal infections. After a careful review of the literature on this subject, Cushing reports two cases of general peritonitis in women from whose peritoneal cavity the gonococcus was obtained on suitable culture media.

Case 1. *Acute abdominal symptoms during menstruation and following gonorrhea—Laparotomy—General peritonitis—Recovery.*

Patient, a maid, aged twenty-five, admitted to the hospital complaining of abdominal pain. There was nothing in the history to call attention to any pelvic disturbance. Possibility of gonorrheal infection was denied. Temperature on admission 100.5°, pulse 110, a leucocytosis of 19,000 present, tongue coated, knees drawn up, no abdominal rigidity. On second day after admission abdominal tenderness more marked, temperature 102°, leucocytes 22,000. A median exploratory laparotomy showed the peritoneal serosa deeply injected, universally covered with yellow fibrin, no free fluid. The abdominal cavity was irrigated. Dr. Young made smears and cultures from the peritoneal surfaces. The smears showed pus cells, but no bacteria. Cultures on agar were negative, as were also those in ascitic fluid agar. Smears from the pus obtained from Fallopian tubes showed numerous bacteria resembling morphologically the gonococcus, mostly intracellular forms. These decolorize after using Gram's stain. The author believes the positive identification of the organism in Fallopian tube and the absence of growth in the ordinary media makes the diagnosis of gonococcus infection conclusive.

In the second case the gonococcus was obtained in pure culture from the peritoneum on hydrocele agar.

A Case of Acute Endocarditis Caused by Micrococcus Zymogenes. (*Nov. Spec.*) With a Description of the Microorganism. Wm. G. MacCallum, M.D., and Thomas W. Hastings, M.D. *Journal of Experimental Medicine*, Vol. IV, Nos. 5 and 6.

The authors report a case which presented during life the clinical manifestations of a septic endocarditis, and symptoms of a general septicemia supervened. During the first ten days in hospital, anemia, emaciation, fever, enlarged spleen, and the cardiac condition of aortic incompetency were the most striking symptoms. Temperature 103° to 104°, and a leucocytosis of 18,000 persisted. Before death a sudden increase of cardiac dullness, and moving outwards and downwards of the cardiac impulse pointed to a rapid and sudden cardiac dilatation. Three days before death blood cultures were taken, and a micrococcus grew out, which had been obtained from a previous blood culture and subsequently at the autopsy. The heart showed an old thickening of the mitral valve, while on some segments of the aortic valve fresh vegetations were seen. There were also vegetations on the left ventricular wall and on the wall of the aorta just above the valves. The right heart was normal.

Cultures of heart's blood, valvular vegetations, etc., showed the presence of a micrococcus, which was also seen, unassociated with other organisms, on smears from the vegetations. Morphologically, it was an extremely minute micrococcus, often somewhat elliptical in outline. It stains with ordinary aniline dyes, and by Gram's method remains deeply stained. What distinguishes it, however, more sharply from the ordinary pyogenic cocci is its behavior in milk. Within twenty-four hours milk is firmly coagulated, but gradually this coagulum becomes liquefied, until a flocculent granular material is found floating in a yellowish liquid. The authors obtained a rennin-like ferment from the organism. They come to the conclusion "that this micrococcus produces both milk-curdling and proteolytic enzymes, separable from the bacterial cells, and capable when thus isolated of producing their characteristic effects in milk and in gelatine."

* * *

A Contribution to the Subject of Chronic Interstitial Nephritis and Arteritis in the Young, and Family Nephritis, with a Note on Calcification in the Liver. N. E. Brill and E. Libman. *Journal of Experimental Medicine*, Vol. IV, Nos. 5 and 6.

The authors believe chronic nephritis more frequent in children than is generally supposed, and that this subject has not received the attention it should. The article contains a very instructive review of the literature on chronic nephritis in children, including abstracts from the well-known articles of Heubner and Dickinson, also careful clinical notes and autopsy findings in a case under

their observation, the pathological report being enriched by several drawings. A short review of the case reported here by Brill and Libman is warranted. It is that of a girl, aged fourteen, whose family history is interesting. One sister, aged nineteen, presents the symptoms, etc., of chronic nephritis—increased micturition, marked anemia, pulse of high tension, apex beat in fifth space to left of nipple line, urine of light color, specific gravity 1.001° to 1.005°, with 0.14 per cent. albumen, no sugar. A brother, aged twenty-four, shows a moderate arterio-sclerosis, a pulse of high tension, a soft systolic murmur over the aortic region, and the apex beat in the sixth space and to the left of the nipple line, urine showing specific gravity 1.012°, no albumen, no sugar.

The patient was admitted with a left-sided hemiplegia, which came on suddenly one week before admission. A general sclerosis of larger peripheral vessels was made out; apex beat in fifth space in axillary line; the urine contained albumen, hyaline and granular casts. She developed symptoms of pulmonary congestion soon after admission, and died with symptoms of pulmonary edema.

Autopsy showed a moderate general edema of body; both lungs were edematous, with areas of consolidation; marked hypertrophy of left ventricle was present; the coronary arteries were very atheromatous; the kidneys showed the typical appearances of chronic interstitial nephritis, with obliterating endarteritis; in the liver the capsule was thickened, parenchyma cells showing marked degeneration and areas of pigmentation. The authors also describe deep pigmentation in kidney, which they believe to be calcium phosphate. The liver also showed a moderate increase in interstitial connective tissue.

* * *

Experimental Production of Gout. By H. Kionka. *Berliner klinische Wochenschrift*, January 1, 1900.

The author first speaks of the recurrence of gout in other mammals besides man, and remarks that birds are also affected. The gout seen in pigs is, however, not due to deposits of urates, but to a deposition of guanin in the muscles, joints or tendons of the affected animal. In chickens the true gouty deposits occur, especially deposits of uric-acid concretions, in the joints of the lower extremities, the serous membranes, and more especially in the kidneys. Ebstein produced gouty conditions experimentally in chickens (see article, P. Mayer, *Berliner klinische Wochenschrift*, 1899, No. 28) after feeding them on chromic acid. According to the experiments of Von Kossa, oxalic acid, phenol, aceton, alum, corrosive sublimate and certain sugars cause the retention of urates in the organism of chickens. Eagles and hawks when kept in confinement have frequently developed gouty manifestations. Kionka thought it would be of interest to determine if gout could be produced experimentally in chickens by less poisonous substances than those mentioned above, and he concluded to feed chickens

entirely on a meat diet and observe the effects. He used full-grown, well-developed birds, which were kept in a roomy cage, being fed twice a day on horse meat which was free from much fat. They were allowed to drink water without restriction. The chickens soon became accustomed to this diet, and for some time seemed to thrive. After a period of three to five months (in a few after a longer interval) the first symptoms developed of a disease presenting the usual clinical phenomena of true gout.

He observed a considerable variety of symptoms in the different birds. In a rather rapidly fatal form of the disease, the birds showed marked disturbances in gait, and drew their legs up spasmodically, apparently on account of pain. Later they were unable to get about, and remained on their backs, and the joints were much swollen. There were periods during which these symptoms disappeared, the joints becoming again normal, and appetite returned. In time the attacks of arthritis, etc., became more frequent, and the feet became so swollen as to be entirely useless, so that the birds used their wings in their attempts to move about. In this more rapid type of the disease Kionka finds the deposits of urates less marked than in the cases with more insidious onset and less acute symptoms. In such cases he claims to have seen typical well-developed tophi form about the joints and in the tendon sheaths of the lower extremities. A certain number of the affected birds showed deposits of uric acid in large amounts in the viscera. The gouty kidney was in fact a constant pathological find in the chickens which succumbed to the effects of this meat diet.

The author determined the nitrogen excreted, and found it very much increased—3.4 to 5.4 gr. in the twenty-four hours. The NH_3 reached generally about 0.3 gr. A great increase was found in the amount of uric acid excreted, being 7 to 11 grs. per day.

He also experimented on the influence of calcium salts, on the excretion of uric acid, and found that they diminished very markedly the excretion of uric acid.

The Frequency of Rickets in Infancy in Boston.—John Lovett Morse (*Boston Medical and Surgical Journal*, Vol. CXL, No. 7) finds marked signs of rickets in 80 per cent. of 400 infants under two years of age coming under observation at the Infants' Hospital. About 40 per cent. of the cases were found in Polish and Russian Jews. The earliest, and a constant, symptom is a rosary. The symptom next in frequency is delayed dentition. The causes are said to be bad hygienic surroundings, race and diet being subsidiary factors in the causation.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

CALCULUS IN THE URETER.

A VERY valuable report is that of Henry Morris in the *Lancet* for December 16, 1899. Besides a careful study of his own cases, he adds a summary of all the operations for calculus of the ureter in the literature, and has written a very comprehensive article upon the subject.

LOCATION.

Calculous concretions, formed primarily in the ureter, are very rare, the stones descending, as a rule, from the kidney. They may remain impacted in the ureter for an indefinite time. With our present knowledge it is impossible in most cases to diagnosticate between stone in the renal pelvis and in the ureter. In a number of cases an exploratory operation has been done upon the kidney without finding a calculus, which was afterwards passed, the probability being that it was down in the ureter in all of these cases. In the normal ureter three points of narrowing are found—first, at a distance of about five to seven c. m. from the hilum of the kidney (one or two c. m. below commencement of the ureter); secondly, where the ureter enters the wall of the bladder, and thirdly, where the ureter crosses the brim of the bony pelvis. It is at one of these points that calculi are more easily arrested, but they may become lodged at other points.

In forty-four operative cases where the seat of impaction was stated, it was within two inches of the kidney in nineteen, just before or where passing through the vesical wall in fifteen, and about the level of the brim of the pelvis in eleven. Twelve out of the fifteen cases where the impaction was at the lower end of the ureter occurred in women, and there is no case of uretero-lithotomy in the male for stone impacted in this situation. In this region calculi may be contained wholly within the ureter, or may project into the bladder, or may lie in a pouch below the ureter between the walls of the bladder, often producing a bulging of the mucous membrane into the bladder.

Ureteral calculi are usually small, not exceeding a cherry stone in size, ovoid in shape, and most often single, though frequently multiple. Often their rough projections are embedded in the walls of the ureter and have to be "dug out" at the operation. When the ureter does not tightly invest it, the calculus may present a gutter-like depression on one surface through which the urine passes. Some calculi move like a ball-valve from the renal pelvis into the ureter and back again.

DIAGNOSIS.

Unless calculi in the ureter can be felt through the abdominal wall, the rectum, the vagina or the bladder, the precise

location cannot be ascertained except by an exploratory operation (or ureteral catheterization or radiography?—Y.). A stone may often be found at the renal end of the ureter by palpation at operation, but its presence much lower down can only be determined by the ureteral bougie. This sounding of the ureter is a very necessary procedure, even after one or more calculi have been removed higher up.

In one case, after removing a large stone from the kidney, on probing the ureter a stone was found about one and one-half inches above the brim of the pelvis, and by prolonging the lumbar incision downwards the stone was removed through an incision in the ureter at a point where the bougie met obstruction. Intraperitoneal exploration of the ureter (by laparotomy) is not to be recommended, and in all cases where symptoms clearly indicate the side to attack, and there is no indication from rectal or vaginal examination that the stone is impacted in the lower end of the ureter, or by palpating the abdomen that it is at the brim of the pelvis, renal exploration and sounding of the ureter is the proper course to follow. The ureter can afterwards be exposed lower down by prolonging the incision if necessary. The diagnosis between stone in the kidney and in the ureter is often impossible to make, and in most cases in which stones have been removed from the ureter the operation was begun with the expectation of finding the stone in the kidney. The location of pain and tenderness gives no accurate idea of the location of the calculus, the pain of a stone in the kidney often being most prominent along the course of the ureter, and vice versa.

In making the diagnosis between a renal stone and cystitis, the fact that often the only symptoms are referred to the bladder has led to some deplorable mistakes in diagnosis, which would not have been made if more attention were given to the examination of the urine and its effect on litmus paper. With calculus in the kidney or ureter, the urine is more or less acid, even when it contains a large quantity of pus or blood. With cystitis, the urine is alkaline, etc. [We cannot allow these erroneous statements which are so frequently made to pass without criticism. The reaction of purulent urine is dependent almost entirely upon the type of bacterium present, the colon group being the principal factor in acid reaction, and the proteus in alkaline. The kidney and the bladder alike may be infected by all classes, the reaction of the urine varying according to the kind of infection. In speaking of vesical tuberculosis, Morris makes a startling statement that tuberculous bacilli are not often found in purulent urine, but with clear urine they will be most likely discovered by the microscope and *by cultivation*. No reference is made to the value of a simple cystoscopic examination to exclude a simple or tuberculous inflammation of the bladder.]

The fact that the calculus in the lower ureter may be mistaken for prolapsed ovary is shown by the number of cases which have been operated upon. A careful vaginal examination should reveal

the difference between a hard, oblong body in the movable ureter and the ovary adherent to the broad ligaments or lying in Douglas' pouch.

SYMPTOMS.

The symptoms are the same as those of renal calculus. The passage of the calculi along the ureter should be suspected if hematuria and other symptoms suggestive of renal calculus have extended over several days or months and if the pain and tenderness becomes progressively lower and the bladder at length becomes irritable. As soon as impaction occurs in the ureter the severity of symptoms will depend upon whether or not the opposite kidney is healthy, and if there is but one kidney, or the two kidneys are fused and have only a single ureter, or if the opposite kidney has been destroyed by disease, anuria is the result. If the calculus is dislodged and expelled in time the kidney will regain its secreting function.

PATHOLOGICAL EFFECTS.

Nephrectasis (a word coined by Morris to designate dilatation of the kidney and pelvis from whatever cause) may often occur. In cases in which the calculus plays back and forth between the ureter and the pelvis very considerable dilatation and atrophy of the renal substances may occur without evidence of tumor on palpation. The changes in the kidney depend upon the duration of the disease, obstruction, infection, etc. It is wonderful how useful an apparently destroyed kidney may be.

At the site of impaction, ulceration, followed later by stricture, is often the result of calculus in the ureter. At the lower end the stone is more likely to ulcerate into the bladder than externally to the bladder.

TREATMENT.

If symptoms continue, giving rise to a suspicion of impacted ureteral calculus, or if attacks of pain, hematuria and pyuria persist after a course of medical treatment and rest in bed, the ureter ought to be explored, and if a calculus is known to be blocking the ureter, it ought to be removed without delay by extra-peritoneal ureterotomy, if it cannot be removed through the renal pelvis.

Forty-six completed operations performed on account of the ureteral calculus are collected from the literature. In a very few had an accurate diagnosis been made beforehand. In four cases nephrectomy was performed. In one of these cases it happened that the calculus was on the opposite side. The stone was usually pushed into the pelvis or removed through an incision in the kidney, and in four cases stone was similarly removed through incision in the pelvis. In twenty-nine cases the incision was made into the ureter and the stone removed, twenty-five by an extra-peritoneal route, and four by intraperitoneal route. Of the twenty-five extra-peritoneal uretero-lithotomies, one was rectal, two were vesical, four vaginal, twelve through the lumbar and six through

an iliac incision. In twenty-eight out of the forty-four cases, operation was performed in the expectation that the disease was renal. In twenty-five of them, the calculi were accessible and removed through lumbar incisions. In three cases the kidney was so diseased as to lead to nephrectomy. In one of the four nephrectomy cases the abdominal route was chosen, as the kidney was hydronephrotic and formed a large abdominal tumor. Of the iliac cases, in three diagnosis had been made by laparotomy previously performed, and in another the position of the stone was ascertained by vaginal palpation.

It is clear from this analysis that in the great majority of cases the lumbar operation is the method to adopt. It is much safer to remove the stone by an extra-peritoneal route, even when its location has been determined by laparotomy. If it is uncertain in which ureter the stone is, it is better to examine each by lumbar incisions than by laparotomy. If, during exploratory laparotomy, a calculus should be found impacted in the pelvic section of the ureter, it should, if possible, be displaced either upward above the brim of the pelvis or downward into the bladder. The ureter should not be incised through the peritoneum. In the lumbar incision, where it is impossible to force the stone up into the pelvis of the kidney, the opening in the ureter should be made a little above the point at which it has been lodged, as the walls of the ureter are more likely to be healthy here. If a stone is in the pelvis of the kidney, and movable, it is preferable to make the incision through the pelvis rather than through the renal parenchyma, as the pelvic incision can be readily closed by sutures. After removing one stone, a ureteral catheter should be passed through the wound down the ureter to the bladder or upon the kidney, so as to make sure of its permeability. The second calculus should be removed through the same wound, if possible, but, if impossible, through a second incision.

A stone impacted in a vesical part of the ureter should be removed through the urethra in the female, or a suprapubic wound in the male.

Note.—Morris' advice to go through the pelvis rather than through the kidney is at variance with Tuffier's statistics, which show that in forty-three cases of nephrolithotomy the mortality was 6 per cent., and fistulae resulted in only 3.3 per cent., while in pyelotomy twelve cases had a mortality of 16 per cent., and fistulae in 20 per cent. A further examination of the collected cases shows that in forty-four cases tabulated from the literature in which the result is noted there have been eleven deaths—a mortality of 24.4 per cent. The fatality was thus distributed:

Pyelotomy, four cases, one death; previous anuria for five days.

Nephrotomy, nine cases, three deaths. Of these, one had incomplete anuria for eighteen days and double-pus kidney; another, anuria for nine days, and a third for six days.

Vaginal ureterotomy, four cases, no deaths.

Recto-ureterotomy, one case, no deaths.

Vesical ureterotomy, two cases, no deaths.

Nephrectomy, four cases, two deaths.

Ureterolithotomy, twenty-two cases, two deaths. One of these was from pneumonia, the other from double-pus kidney.

According to these figures, it would hardly seem necessary or advisable to attempt to displace the stone from the ureter into the kidney pelvis before removal, as Morris advises, but to do the ureterotomy at once and thus save valuable time.

In many of the cases published the wound in the ureter was left unsutured without bad result. In cases that were sutured, fine silk was generally used.

In only one of the forty-seven cases was the calculus detected by catheterization of the ureters, and, as Morris remarks, in most cases it was found unexpectedly. It is evident that the valuable procedure of ureteral catheterization has been considerably neglected.

The ease by which Kelly has detected calculus in the kidney by his method shows its great advantage. The use of the cystoscope in the male would have undoubtedly been of help in many cases.

The absence of all reference to the use of the *x*-ray is also surprising. In a recent report Albarran has shown its great efficiency in certain cases, especially with oxalic calculi, which can be readily seen in the radiograph on account of their great opacity to the rays. The phosphatic and uric calculi are too translucent, as a rule, to be seen through so much tissue.

The low mortality shown in the ureteral lithotomy operations, and the ease of removing stones from almost all portions of the ureter through the lumbar incision, should encourage operators to perform this operation more frequently and much earlier.

It is hardly justifiable to wait until anuria or pyonephrosis has set in.

* * *

DIABETIC GANGRENE—A MISNOMER.

Under the title of "Gangrene Complicated by Glycosuria," C. S. Wallis publishes in the *Lancet* of December 23, 1899, a very interesting study of these cases, and comes to the conclusion that true diabetic gangrene does not exist. We abstract briefly:

Text-books still describe gangrene complicated with sugar in the urine as a disease distinct from senile or arterial gangrene, but it is probable that the correct classification is that which puts senile gangrene and diabetic gangrene under the same head, and describes the latter as a variety of the former. The mode of onset, course and termination of the two are so alike as to be indistinguishable.

Among twenty-six cases of diabetic gangrene admitted to St. Thomas' Hospital, twenty-four records were made of the condition of the arteries, and in twenty-three there was well-marked atheroma. Inflammatory conditions and neuritis have been assigned as the cause of the gangrene, but the disease does not start

in this way. Neuritis is certainly an accompaniment, but does not occur with sufficient regularity to be considered a cause, and it is often present in senile gangrene. By far the most constant pathological condition is arterial degeneration, and the usual idea that it is due to the diabetes seems to be incorrect. The proportion of male and female diabetics is as one to two, but the proportion of males affected with gangrene is far greater, as is also true with arterio-sclerosis.

In a note of the first four cases, in which amputation was done on account of gangrene, Wallis says:

"There is one striking fact in these cases. In a certain number sugar is present, and the history of the case points to the glycosuria being present some time before the gangrene started. The glycosuria, however, is not a prominent feature of the history, and it is only discovered when the gangrene has led to the urine being tested. Inquiry often shows that the first manifestations, if present, were only active after the appearance of the gangrene. The disappearance or diminution of the sugar after the operation, which occurred so uniformly, opens the door to the supposition that the septic process is the cause of glycosuria, or at least aggravates it. It has been pointed out that glycosuria may rise from various septic reasons, such as erysipelas, abscesses, carbuncle and other sloughing processes."

Carbuncle is perhaps more often associated with transient glycosuria than any other septic state. In one case with carbuncle the urine contained 300 grains of sugar, but nine days after the incision the sugar had disappeared entirely.

Another case of ulcer of the rectum had a large amount of sugar in the urine, which disappeared entirely after excision. A case of carcinoma of the rectum, with no sugar; developed a foul sloughing cavity after operation, and the sugar rose to 2300 grains per day. In none of these cases were there symptoms of diabetes, except the sugar, and the diet in each case was unrestricted.

If the assumption that septic processes lead to glycosuria is correct, we should expect to find that individuals suffering from septic diseases are nearer glycosuria than are normal subjects. It has been shown that all persons possess a saturation point for sugar, and that if more than a certain amount of carbohydrates is taken at a meal sugar will appear in the urine. A healthy man can take 300 grammes of glucose and not have any sugar in his urine. In patients suffering from septic absorption 50 grammes will often overcome the competence of the kidneys and appear in the urine.

Six cases are adduced to prove these statements, it being shown that in such cases before operation small amounts of sugar taken into the mouth will appear in the urine, but that after the operation very much larger amounts fail to produce any glycosuria.

Wallis believes that the fear of local sloughing is without foundation, and that if the amputation has been high enough up to secure fairly healthy blood-vessels the flaps may be expected to heal well.

The following conclusions are drawn:

"1. It yet remains to be proved that true gangrene occurs in diabetics, unaccompanied by such arterial disease as would of itself produce gangrene.

"2. That the glycosuria may or may not precede the gangrene, but it is not usually accompanied by other signs of diabetes.

"3. Septic wounds may produce a glycosuria, which vanishes when the septic process is removed.

"4. That individuals suffering from septic processes are often on the borderland of glycosuria.

"5. Gangrene may aggravate a previously-existing glycosuria.

"6. That the arterial diseases are sometimes those which accompany or are produced by chronic renal disease.

"7. That it is yet to be proved that neuritis can produce gangrene comparable to that of the so-called diabetic gangrene.

"8. That the best chances of recovery are offered by the removal of the limb near the trunk, and that this measure should be undertaken before the patient is reduced by septic absorption.

"9. That the presence of glycosuria may be an indication rather than a contraindication for operation."

Three Cases of Tetanus Treated with Antitoxic Serum. In *Providence Medical Journal*, January, 1900, there are reported three cases of tetanus, occurring at the Rhode Island Hospital.

Case 1. Carpenter, aged twenty-four, trod upon a rusty nail; six days later had stiffness of the jaws, and ten days later was admitted to the hospital with contractures of arms and legs, and frequent spasms; temperature 101.4°, pulse 140, respiration 20. A subcutaneous injection of 40 c. c. of antitoxin having produced no improvement, 4 c. c. were injected into the frontal lobes of both hemispheres. After twelve hours of apparent improvement convulsions returned. Another dose of antitoxin, 20 c. c., was given subcutaneously. Death occurred ten hours later.

Case 2. A schoolboy, aged nine, injured his scrotum while sliding down a shingle roof. Fifteen days later he entered hospital, having trismus, opisthotonus, right pleurothotonus, and convulsions; temperature 100.2°, pulse 120, respiration 25. Antitoxin was given by subcutaneous injection (20 c. c.). Two similar doses were given during the same night, and in six weeks he was well.

Case 3. Boy, aged twelve years, wounded in the thigh by blank cartridge; fifteen days later entered hospital with contractions of the muscles of the jaws and neck; mild convulsions; temperature 100.2°, pulse 100, respiration 22. Subcutaneous injection of 30 c. c. of antitoxin; slight improvement. Next day 45 c. c. were injected at one dose. Symptoms abated, but five days later muscles of abdomen and legs became rigid. Three injections of 20 c. c. each were given in twenty-four hours. Symptoms grew worse. Two more injections of 20 c. c. each were given, and from this on symptoms abated, and recovery ensued.

Fig. I.

Fig. II.

Fig. III.

Fig. IV.

The Pathognomonic Sign of Measles (Koplik's Spots).

FIG. 1.—The discrete measles spots on the buccal or labial mucous membrane, showing the isolated rose-red spot, with the minute bluish-white centre, on the normally colored mucous membrane.

FIG. 2.—Shows the partially diffuse eruption on the mucous membrane of the cheeks and lips; patches of pale pink interspersed among rose-red patches, the latter showing numerous pale bluish-white spots.

FIG. 3.—The appearance of the buccal or labial mucous membrane when the measles spots completely coalesce and give a diffuse redness, with the myriads of bluish-white specks. The exanthema on the skin is at this time generally fully developed.

FIG. 4.—Aphthous stomatitis apt to be mistaken for measles spots. Mucous membrane normal in line. Minute *yellow points* are surrounded by a red area. Always discrete.

(*From Medical News.*)

KOPLIK'S SIGN IN THE DIAGNOSIS OF MEASLES.

[Editorial Note.—This month the Maryland Medical Journal presents twenty replies to the question: "What value do you place upon Koplik's Sign in the Diagnosis of Measles?" More than forty letters were received upon the subject, but only those which were based upon actual personal observation are printed. All of the adverse opinions are found in the following twenty letters. The remarks of Dr. Koplik are a brief commentary on the collected testimony, which was submitted to him in proof-sheets. We are indebted to Dr. Koplik and to Lea Brothers & Co., for permission to reproduce the colored illustration.]

Vanderpoel Adriance, M.D., Nursery and Childs' Hospital, New York, N. Y.:

While studying an epidemic of measles which occurred at the Nursery and Child's Hospital during the past summer I was more and more impressed with the value of Koplik's spots. Ninety-six cases were obeserved, and in 76 per cent. of the carefully recorded cases the spots were found. In twenty cases they were present before the appearance of the rash, and facilitated an early diagnosis. It could hardly be expected that they should be constantly present. The rose spots of typhoid are not always found, but every clinician recognizes their value, and in differential diagnosis Koplik's spots will surely prove of the greatest value.

Samuel S. Adams, M.D., Professor of Diseases of Children, Georgetown University, Washington, D. C.:

In typical cases of measles it is not necessary to confirm the diagnosis, and in atypical I have been unfortunate in *not* finding it.

Alexander D. Blackader, M.D., Professor of Therapeutics and Lecturer on Diseases of Children, McGill University, Montreal, P. Q.:

I consider Koplik's sign of much value as a means of diagnosis in the days preceding the appearance of the eruption in measles. Thus far in every case in which I have had an opportunity of examining for it, its presence has been followed within forty-eight hours by the rash of measles on the skin. My experience at the present is not sufficient to make me say whether it is present in every case.

C. A. Blanton, M.D., Professor of Diseases of Children, Medical College of Virginia, Richmond, Va.:

Its presence I consider of very great value.

J. C. Cameron, M.D., Professor of Obstetrics and Diseases of Children, McGill University, Montreal, P. Q.:

My experience is not sufficiently great to warrant a positive opinion. In the majority of cases of undoubted measles I have found Koplik's sign present. In a few I have not got it early enough to be of use in diagnosis. In a few I have got it, and the measles did not materialize. Perhaps a longer experience may make my failures fewer.

ALFRED C. COTTON, M.D., Associate Professor of Diseases of Children, Rush Medical College, Chicago, Ill.:

I have demonstrated to my own satisfaction the presence of Koplik's spots in only about a dozen cases of measles. In only one case have I made the diagnosis dependent upon this sign. You will see that I have not thus far learned to depend upon it, although I am always looking for the spots. In time I may come to regard more highly this very interesting clinical feature so clearly brought forward by our esteemed observer.

WILLIAM FITCH CHENEY, M.D., Professor of Medicine, Cooper Medical College, San Francisco, Cal.:

I have failed to find Koplik's sign in certain cases which subsequent development proved positively to be measles; but, on the other hand, I have frequently found it present in suspicious cases before the diagnosis could be made in any other way. I am therefore inclined to look upon its presence as diagnostic, but do not believe its absence always negatives the diagnosis. I have to thank Dr. Koplik for personal demonstration of the matter to me at the Good Samaritan Dispensary in New York, and therefore feel certain that in the cases where I have missed his sign it was not because I did not know for what to look.

P. G. DE SAUSSURE, M.D., Professor of Obstetrics, Gynecology and Diseases of Children, Medical College State of South Carolina, Charleston, S. C.:

In a practice of about eighteen years, seven of which were very much occupied in seeing after children in dispensary practice, I found the sign very valuable; in fact, have come to consider it as more or less diagnostic.

R. B. GILBERT, M.D., Clinical Professor of Diseases of Children, University of Louisville, Louisville, Ky.:

I place some value on the so-called "Koplik's sign" in early diagnosis of measles. It is of special value in negro children, as their skin does not show red color, as in the white race. "Koplik's sign," however, is not new. I myself have been teaching it to my classes for fifteen years, my attention having been called to it by reason of having many negro children in my clinic.

JOSE L. HIRSH, M.D., Assistant to the Chair of Pediatrics, University of Maryland, Baltimore, Md.:

My attention was first called to the presence of Koplik's spots in measles while in Vienna, about two years ago. Since that time I have had the opportunity both abroad and at home of seeing many cases of measles. I have invariably found the spots in all cases which proved to be measles. I make it a routine practice to examine the buccal mucous membrane of all children who present catarrhal symptoms or skin lesions, and have never satisfied myself that these spots were present in any other condition except measles. I have looked for them carefully in scarlet fever, rubella, urticaria, quinia eruption, and influenza, with negative results.

The difficulty of diagnosis of measles in colored children is frequently great. The presence of Koplik's phenomenon in positive cases, its absence in negative cases, have proved of considerable value to me in coming to a definite conclusion.

The ability to diagnose measles in the pre-eruptive stage by the presence of the spots is of great value in the early isolation of the patients. I consider the sign as pathognomonic of measles.

E. Libman, M.D., Assistant Pathologist, Mt. Sinai Hospital, New York, N. Y.:

In response to your query as to my opinion of the diagnostic value of the buccal eruption of measles, I would say that I have but little to add to what I have stated in my article in the *New York Medical Record* of June 11, 1898. I there reported on fifty cases of measles (seen from January 1, 1895, until that date) which I had the opportunity of examining before the skin eruption appeared, or a short time after its appearance. To these fifty cases I can now add about fifteen more.

I have never seen the spots described by Koplik in any disease but measles. Whenever similar spots have been seen in other diseases they could be distinguished by the absence of the inflammatory halo, or by the tendency to a yellowish or brownish color. Recently I had the opportunity of seeing the spots on the conjunctiva, just as the rash began to appear on the skin.

The sign is of special value:

1. For the diagnosis of measles from drug rashes, antitoxine rashes, enema rashes and other exanthemata (including syphilis).

2. For the diagnosis of measles occurring in children suffering from some other acute or chronic disease, and in adults.

3. For enabling us to prevent the occurrence of epidemics in hospitals and other institutions, and for limiting epidemics when they have once arisen.

This last object can be accomplished by the observance of the following methods:

(a) When a measles case has occurred in a ward of the hospital or public institution the mouths of every inmate should be examined once daily, or, better, twice, and all showing the measles spots should be at once isolated.

(b) *It should be the rule that every child for which admission to a hospital or asylum is sought should be examined for the buccal eruption of measles, just as we examine the throat for membranes, and the hands and feet for desquamations.* I wish to emphasize this point, because it is of great practical importance.

Jacob Lichtenstein, M.D., New York (translated from the German):

I myself at one time belonged to that majority who had little confidence in the diagnostic value of Koplik's "spots."

While assistant for a period of almost two years in Koplik's clinic the opportunities were given me to become thoroughly familiar with these spots under the personal teaching of Dr. Koplik. I thus learned to recognize them as constantly associated with measles. The appearance of the

spots has been sufficiently dealt with by other observers, but I must here also lay stress on the fact that spots occur on the mucous surfaces of the mouth closely resembling the Koplik spots, but which are in no respect pathognomonic of measles. Thus many of the controversies have arisen on this subject. The morphology has to be carefully studied, like all other subjects, and it is my opinion one should have the benefit of having them demonstrated by one who has become thoroughly familiar with them. If one now examines every case in which the suspicion of measles is warranted, and one is perfectly certain what one is looking for and what the appearances should be, it is only in the rarest instances of true measles that these spots are not found, and this only in cases where the mucous surfaces of the mouth have been previously cleaned. In the course of the past year I saw in the clinic and in private practice over 100 cases of measles and quite a number of cases showing exanthemata closely resembling measles. In those instances which failed to show the above-named spots on the mucous surfaces of the mouth I always excluded true measles, and the further course of the case invariably demonstrated the reliability of this test; so that in cases of rubeola, erythema multiforme, influenza with exanthema, drug exanthema, the absence of Koplik's sign was always of value in making the differential diagnosis.

Similar observations were made by a friend of mine, who had attended Heubner's clinic. He recited the following interesting case showing the value of this sign:

A man, aged thirty, was taken ill, with high fever and clinical appearances of typhoid, headache, joint pains, diarrhea and marked stupor. On the fifth day of the disease the attending physician noted a roseola-like eruption, which was sparse, over the trunk, etc. Accidentally he examined the mucous surfaces of the mouth, and found Koplik's spots present; the diagnosis of measles was made, and this was fully sustained by the further course of the disease.

These spots have also a decided bearing on the subject of prophylaxis in this disease. In the last epidemic of measles in the city of New York I remember but a single instance when Koplik's sign first showed itself on the day of the appearance of the skin eruption. In all other cases it showed itself three or four days, and in one instance even five days, previous to the skin eruption. I was therefore able to diagnose the cases as measles many days earlier, and thus institute the proper prophylactic measures as a protection to other members of the patient's family.

CHARLES W. MITCHELL, M.D., Professor of Diseases of Children, University of Maryland, Baltimore, Md.:

Since the appearance of Koplik's article in the *Archives of Pediatrics* I have been greatly interested in the sign so well described by him. It is my invariable rule to carefully inspect the buccal mucous membrane in all cases where a suspicion of measles exists, and I find Koplik's sign present in a majority of cases in which measles develops. In my experience the characteristic eruption upon the mucous membrane of the mouth precedes the cutaneous eruption by a period varying from twenty-four to forty-eight hours. In an epidemic which we are at present studying in the hospital of the University of Maryland Koplik's sign has been present in eight out

of nine cases. I regard the sign as a most important diagnostic symptom of the stage of invasion of measles.

John Lovett Morse, M.D., Assistant Professor of Clinical Medicine, Harvard University, Boston, Mass.:

I have learned to place great reliance on Koplik's sign in the diagnosis of measles in the prodromal stage. It has often enabled me to diagnose the disease twenty-four or forty-eight hours before the appearance of the eruption. It is not infallible, but as nearly so as most physical signs in medicine. I attach more importance to its presence than to its absence.

C. C. Ross, M.D., Columbus, Ohio:

Koplik's sign is of great value in the *early* diagnosis of measles. It makes a diagnosis possible previous to the appearance of the exanthem, and is of value in differentiating other diseases.

When present, a positive diagnosis of measles can be made; and this disease ruled out in cases that simulate measles, but in which the spots are not found.

When the eruption on the body appears and is at its height, the spots on the buccal mucous membrane begin to fade; hence in the later stages of the eruptive period they usually are absent. Sometimes they are very few—only one, two or three. In such cases they may be easily overlooked and lead some observers to think they do not always exist.

Dr. Koplik says "they always appear at some time, and never in any other disease." My experience leads me to confirm his claims, and my belief is that when found they are pathognomic; that in suspected cases, after a careful examination in a good light, if they are not found, a diagnosis of "not measles" can equally safely be made.

Jacob Sobel, M.D., Good Samaritan Hospital, New York, N. Y.:

The presence of these spots is absolutely pathognomonic and characteristic of measles; just as malaria can be diagnosticated upon finding the plasmodia in the blood, so the existence of Koplik's sign on the buccal mucous membrane stamps the disease as morbilli, irrespective of any history or symptoms. This sign excludes all other morbilliform eruptions and all other catarrhal affections.

I have yet to see the case in which the presence of these spots was not followed by the measles exanthem, with all its accompanying symptoms..

The absence of this phenomenon in the pre-eruptive and early eruptive stages precludes, to my mind, the possibility of measles. In the pre-eruptive period, however, care must be exercised in observation, since the buccal eruption appears at periods ranging from four, or even five days, to a few hours before the cutaneous manifestation of the disease. Hence, while a diagnosis may not in all instances be established several days before the full development of the disease, there is a time in every case when Koplik's phenomenon makes its appearance.

It has been my experience that these spots, as a rule, appear from twenty-four to forty-eight hours before the cutaneous outbreak.

It is my firm belief that many of the cases heretofore diagnosticated as measles, without the sign, have been nothing more than aggravated cases of rötheln, since even in the mildest forms of measles these spots are always seen, whereas in the most severe instances of German measles they are always absent.

You might place me on record, therefore, as a firm believer in the pathognomonic character of this phenomenon.

R. Tunstall Taylor, M.D., Surgeon in charge at the Hospital for Crippled Children, Baltimore, Md.:

In addition to the other prodromata of measles, I have found Koplik's sign present and of value in making an early diagnosis. I have never seen Koplik's sign where the macules of different sizes on the soft and hard palate were not present, and this latter symptom I have found of equal value in making an early diagnosis for purposes of isolation and preventing the spread of the disease to other children in the household or hospital. According to Stawyk's report of an epidemic in Heubner's clinic, where forty-five out of fifty-two cases of measles presented Koplik's sign, we can regard it as practically constant and confirming Koplik's observation. I have found these bluish-white spots on the inner surface of the lower lip, and not on the mucous membrane of the cheek.

J. Park West, M.D., Bellaire, Ohio:

Dr. Koplik at his clinic showed me the spots in a number of cases before publishing his first paper on the subject, and seeing a positive diagnosis of measles made, with none of the usual symptoms present, led me, at Dr. Koplik's suggestion, to see several of these cases at their homes that I might be convinced of the correctness of his diagnosis and of the value of the exanthem. It is hardly necessary to say a typical case of measles developed in each case. Since that time I have seen about 125 cases of measles in my practice, and the spots were present in each one. Only twice have I been mistaken in basing a diagnosis on Koplik's spots, and both times this was due (and this is a point upon which too much stress cannot be put) to not having a good light. In both cases (one was measles and one was not) the diagnosis was corrected a few hours later by the presence of the spots in one, and their absence in the other, when seen by a proper light.

Fred T. Zabriskie, M.D., New York, N. Y.:

I have found Koplik's sign an invaluable aid in the *early* diagnosis of measles and in the differential diagnosis between true and German measles, and true measles and the various transient and ill-defined erythemas. Both in private practice and in assisting Dr. Koplik in his large dispensary service I have had abundant opportunity to prove the reliability of this sign.

John Zahorsky, M.D., St. Louis, Mo.:

My experience leads me to the following conclusions:

Koplik's sign is found only in connection with measles, and when present is a pathognomonic sign of that disease.

This sign may be absent in undoubted measles; therefore the absence of this sign does not exclude measles.

It would as yet be unwarranted to call all cases having the clinical symptoms of measles, but not showing this sign, cases of rubella.

HENRY KOPLIK, M.D., Attending Pediatrist to the Mount Sinai Hospital, New York, N. Y.:

This sign is only of value as it appears on the buccal mucous membrane (the inner surface of the cheeks and lips). Any signs, spots or appearances on the hard and soft palate, the pillars of the fauces, the conjunctiva, are of no value and rather misleading, for signs and spots exactly similar to those described on the hard and soft palate and pillars of the fauces appear not only in measles, but also in rötheln, scarlatina and grippe and simple sore throat. The buccal spots as described by me appear only in measles, and in none of the exanthemata, and to my positive knowledge in no other known disease of the mouth or any constitutional affection. They must be looked for in a very strong daylight. They must be seen in the discrete state, that is, small, irregular, rose-colored spots, with a very minute bluish-white speck, just large enough to be visible in the center of the rose area. Patches or yellowish specks must be excluded. We study the buccal membrane by everting it toward the light with the finger or a depressor. We observe the inner surface of the lips also.

In my first paper I called attention to the great value of this sign in distinguishing between measles and cases of rötheln or rubella. Since then I have studied this very important part of the question faithfully in many hundreds of cases of rötheln in what might be called small local outbreaks of the disease.

I have become impressed with the fact that this buccal sign is valuable in aiding us by *its absence* to make a diagnosis of rötheln. Many cases of rötheln in a recent series of cases here in New York in my clinical and private practice have resembled measles so closely that practitioners studying with me have at first pronounced them true measles. We have taken great pains to study all these cases, and I have found that they were classical rötheln. The exanthema disappeared in two or three days, leaving no pigmentation or desquamation. The fever, at first 102°, rapidly subsided to the normal. There were no sequelae, no complications. They corresponded in every way to the descriptions of Thomas. In all such cases the measles spots were *invariably absent*. In some of my own families subsequently cases of rötheln cropped out among the other children. Here, as in the first cases, the spots were absent. The identity of the affection was thus proven. The value of the sign in excluding measles is apparent. It proved to me also that rötheln is a disease *sui generis*, distinct from measles. I have lately had several cases of undoubted rötheln in adults contracted from children, the adults and children being in one case in the same family. In both adults and children the spots were absent. I suspect that many cases of other observers of so-called measles, in which the "spots" were absent, have been aggravated cases of rubella or rötheln.

THE CLINICAL SOCIETY OF MARYLAND.

MEETING HELD JANUARY 5, 1900.

The meeting was called to order by the president, Dr. James M. Craighill.

Dr. Smith McKim: "Enlargement of the Liver in Rickets."

Dr. McKim exhibited a child who had been under treatment at the Hospital for Crippled and Deformed Children. On admission to the hospital the child exhibited all the symptoms of rickets. The abdomen was markedly distended, the whole right side being occupied by the liver, the right lobe of which extended to the right anterior superior spinous process of the ilium, and on the left to a point some distance beyond the median line. There was no ascites at any time, and the spleen was barely palpable. The family history regarding tuberculosis, syphilis and cancer was negative, and the fact that considerable quantities of whiskey had been administered to the child before it was brought to the hospital suggested the possibility of its being an alcoholic liver. All treatment, however, failed until inunctions of mercury were used, when immediate improvement was noticed, and inside of a month the child was able to run about. Notwithstanding the absence of a specific history, it was considered probable that this was a case of syphilitic liver associated with rickets, inasmuch as syphilis and rickets are well known to be closely allied.

Dr. Randolph Winslow: "A Case of Supra-epicondylar Dislocation."

The patient, an elderly man, in the early part of December, while riding in a spring wagon was bounced out by the wheel suddenly dropping into a rut. When he came to the hospital his arm was so swollen and edematous that it was difficult to make out the exact nature of his trouble. After hot cloths had been applied to the elbow for a considerable length of time, he was anesthetized for examination. The dislocation was then recognized, but the hardest efforts failed to reduce it. Before proceeding to further operative measures, an *x*-ray picture of the arm was taken, and shows the condition fairly well. An operation was then undertaken for the reduction of the dislocation. The arm was extremely swollen and the anatomical features very much obscured, but it could be made out that the head of the radius and the olecranon process were displaced outwardly, and the condyles of the humerus could be felt to the inner side of the radius and ulna. Stimson speaks of this as a supra-epicondylar dislocation.

I made an incision down the back of the arm and another crosswise near the joint, which was opened freely. It was very difficult even then to effect a reduction, and it was only accomplished after considerable separation of the muscles. The patient is sixty-three years old, and he has now a fair amount of passive motion, which I hope will become active in the course of time. Only twenty-five cases of complete external dislocation at the elbow joint are recorded in Stimson's "Surgery."

Dr. Finney: I can readily appreciate what Dr. Winslow means when he says that he had great difficulty in reducing this dislocation at the time of operation, for I had a somewhat similar experience this morning with a backward dislocation in a young man who had a fracture of the external edge of the condyle, with a dislocation backward of the ulna and radius. I

attempted to reduce it without operation and failed utterly. Then I made an incision, filed through the external condyle, chiseled off the fragment, resected the end of the radius, and, as that did not help at all, I divided the internal condyle, and finally divided almost completely the tendon of the triceps. The olecranon process also had to be divided.

Dr. J. C. Bloodgood: "Report of Two Cases of Coxa Vara."

Case 1. This man has a marked outward rotation, with adduction of the right leg, and when the pelvis is on a level the affected leg crosses the other at the level of the knee. There was no shortening between the trochanter and the anterior superior spine, but it was a typical picture of a backward bending of the neck of the femur. It was impossible to obtain a correct history of the patient's earlier life. He had been a horse dealer, and had been thrown and kicked by horses a number of times, but did not attribute his injury to any special accident.

On cutting down and exposing the joint from in front, we found that there was a fracture in the epiphyseal line which produced the angular deformity. I simply chiseled the head from its position, and corrected the deformity with the least possible removal of bone, and the man now walks without crutches, and has some motion at the hip.

Dr. Finney has had a somewhat similar case in a patient, seventeen years of age, in whom there was outward rotation, with slight adduction, and a definite shortening between the trochanters and anterior spine. At the operation Dr. Finney found a fracture between the head and neck in the epiphyseal line and the trochanter and neck dislocated upward and backward. The length of time between the receipt of the injury and the appearance of pain and deformity was only about five weeks in this case.

Dr. Halstead has had a similar case in a woman, twenty years of age, who had received an injury two or three months previous to admission to the hospital. She had practically the same deformity as described in Dr. Finney's case, and she reacted to the tuberculin test. An incision was made in front, and Dr. Halstead found a fracture between the head and neck of the femur, but the union was so good and deformity so slight that he did nothing more than simply close the wound, and the patient is perfectly well today.

The second case I want to present to you is a rare one, in that there was abduction. There was no history of traumatism, and the slow increase in the deformity covered a period of three years. At the operation, which I performed by anterior incision, I found that the trochanter and part of the neck had rotated very markedly outward, forming quite an angle with the head, which was pushed downward and slightly outward. I simply took the head away and reduced the deformity, but it was only six weeks ago, and we cannot tell as yet what the result will be. I could not at the time make out a fracture in this case, but as the injury must have been three years or more previous I must depend upon microscopic examination of the bone to demonstrate its presence.

The chief reason for speaking of this fracture of the neck of the femur is to impress upon ourselves the possibility of fracture from very slight trauma, especially in children and young adults. The trauma may be so slight as to be overlooked and forgotten, but as the patient continues to walk about, the pain and deformity slowly increase until, when seen by the

surgeon, the clinical picture of true coxa vara is present. These cases must be differentiated from tuberculosis of the hip joint, and I suspect that many cases of so-called tuberculosis of the hip are the result of fracture of the neck of the femur.

Dr. Finney: Dr. Bloodgood has referred to a case that I was much interested in. The boy gave a history of two slight injuries, but they were so slight that I did not consider them worth much attention. The diagnosis of coxa vara did not occur to me previous to the operation, but as soon as the joint was opened it was plain enough. I thought at first, of course, of resection, but, knowing it was a recent case, and having in mind a case seen a few days before in which I had reduced the dislocation by strong flexion of the leg, I determined to try that maneuver, and found that I could, by strongly flexing the leg and abducting it, get the fragments into position, and I put the leg up in that position. It was not a desirable position, but it answered the purpose very well. Dr. Bloodgood tells me that in looking over the literature he could not find a record of any other case having been reduced. The boy made a very good recovery, and though his leg is not in perfect position, has pretty good motion, being able to flex the leg nearly to a right angle, and by the use of a little thicker shoe-sole walks in comfort.

MEETING OF JANUARY 19, 1900.

Dr. Stewart Paton: "Exhibition of Two Cases of Pseudo-general Paralysis of the Insane" (to be published later).

Dr. H. B. Jacobs: "A Case of Congenital Heart Disease."

I had expected to exhibit the patient this evening, but the weather has prevented. The child, five years of age, illustrates very beautifully some of the clinical peculiarities of congenital heart disease, having the blue disease pre-eminently. It is very livid, and has marked clubbing of the fingertips, and moreover has the restless expression of a child whose mind is badly nourished. The mouth hangs open, some saliva oozing from its corners, the teeth are badly formed and rapidly decaying. On auscultation there was a very loud systolic murmur at the apex, and as one passed upwards over the pulmonary area the same sound could be heard, together with a machinery noise lasting through the whole cycle of the heart. The question as to the underlying condition is hard to answer. The extreme cyanosis, and the machinery murmur occupying the whole cycle, with the systolic accentuation, seem to show that it is probably a constricted pulmonary artery with a deficient septum ventriculorum.

Dr. W. G. McCallum: "Congenital Heart Disease as Illustrated by Museum Specimens."

Dr. McCallum has recently made a study from all the heart specimens of the museum of the Johns Hopkins Hospital, and exhibited a number of specimens showing the characteristic lesions and explaining their effects. He also showed a number of stereoscopic pictures of some of the most interesting specimens, which served to show the lesions in a most admirable way.

Dr. T. B. Futcher: "A Case of Diabetic Coma."

The patient, a young girl of fourteen, came to the Johns Hopkins Hospital in March, 1899, with acute rheumatism, with endocarditis and pericarditis as complications, and while in the hospital developed double pneu-

monia and pleurisy, from all of which she finally recovered, and left the hospital apparently well, except for definite evidences of valvular lesions of the heart. During the past year she has worked as a nurse-maid, and has remained in fairly good health until about two weeks ago, and on January 14 she entered the hospital again. Two weeks before admission she began to complain of shortness of breath and loss of strength. She had noticed that her tongue frequently became very dry, and she had to take large quantities of water to keep her mouth moist and to quench her thirst. There was no increase in the appetite, and none in the amount of urine voided so far as we could learn. She had some attacks of vomiting and some slight epigastric pain, but continued at her work until three days before entrance to the hospital. On admission she was rather drowsy, distinctly cyanotic, and on physical examination we found definite evidences of mitral stenosis and adhesive pericarditis. An examination of the urine showed 4.8 per cent. of sugar, and during the first fourteen hours she excreted 110 gms. of glucose. Nothing of special note happened until Monday, January 15, when we noticed the respirations changing in character, and we suspected the onset of diabetic coma. During the night she became more drowsy, the respirations became deeper, and on Tuesday morning by 10 o'clock they were of the typical "air-hunger" type first described by Küssmaul. There was a slight fruity odor to the breath, and she was distinctly cyanotic. She was rather dull mentally, but could be aroused, and answered questions slowly. During the day the condition remained much the same.

Before speaking of the treatment I would like to say a word in regard to the etiology of diabetic coma. Various theories have been held in regard to its cause, but it is generally accepted now that it is an auto-intoxication, due to the presence in the circulative blood of abnormal substances produced in the system. It was at first supposed to be due to acetone, but this theory had to be given up, because experimental work showed that acetone injected into animals produced no such symptoms. Later it was believed that the coma was due to aceto-acetic or diacetic acid. This theory was generally accepted for some time, but as the result of experimental work it was shown that it was not the cause of the coma. In 1884 three different German observers—Minkowski, Külz, and Stadelmann—almost simultaneously discovered beta-oxybutyric acid in the urine and blood of patients suffering with diabetic coma, and they believed the symptoms were due to the toxic effects of this acid. This theory has been generally accepted, and is the one now believed to be the explanation of diabetic coma. All these substances are closely related, and one can be readily transformed into the other. The primary substance is the last named, but it is very unstable, and readily oxidizes, changing to diacetic acid and water. Consequently, in order to determine its presence, it is necessary to secure a perfectly fresh specimen of urine. The diacetic acid is somewhat less unstable, but readily breaks up into acetone and carbonic-acid gas. It is important, when you have a diabetic patient under your care, to follow the presence of these substances in the urine.

The presence of beta-oxybutyric acid can be determined in the following manner: First, make a quantitative determination of the sugar by Fehling's method, and then determine the percentage of sugar by the polariscope,

and if you find a considerably higher percentage by the first method it is very strongly suggestive of the presence of this acid. This is due to the fact that beta-oxybutyric acid is a levo-rotator, and consequently neutralizes some of the dextro-rotatory action of the glucose in the polariscope test.

The possibility of the early onset of diabetic coma, however, may be suspected by noting the presence of diacetic acid in the urine, and there are several clinical tests by which this substance may be detected. As the reaction is very marked in the specimens from this patient, I thought it might be of interest to show the method. If you add a few drops of ferric chloride solution to the urine you obtain distinct burgundy-red color. This color may also be obtained if the patient has been taking salicylates, or by the presence of formic or acetic acid salts in the urine. To distinguish the reactions a second portion of the urine is thoroughly boiled. If the original reaction is due to diacetic acid, the reaction disappears in the boiled urine, and persists if due to salicyluric acid, etc.

The presence of acetone is not of great value from the prognostic standpoint, because the majority of diabetic urines contain it in moderate amounts.

As soon as we suspected the onset of coma in this case we instituted the treatment which is believed to give the most satisfactory results, that is, the antiacid or alkaline treatment. We tried to get her to take sodium bicarbonate in large quantities by the mouth, but the stomach was irritable, and she repeatedly vomited it. We then tried to give the drug by enema, and this she expelled, retaining only a small amount. As she was distinctly duller the next morning, as I have stated, she was given a subcutaneous injection of normal salt solution at 9 o'clock, and about noon we decided to give an intravenous injection of 1000 c. c. of normal salt solution containing 8 grammes of bicarbonate of soda. The result was very satisfactory. The cyanosis disappeared, respirations became less deep, and she became slightly clearer mentally. During the afternoon, however, she relapsed, and we gave another injection, with the same beneficial results. The treatment was repeated at 2 o'clock the following morning, and the next morning she was able to sit up in bed and talk quite rationally. The following night she was given another intravenous injection of 1000 c. c. normal salt solution, with 20 grammes sodium bicarbonate, and since then she has been progressing very favorably. She never became completely comatose, because the treatment was begun early, and she is now taking large quantities of sodium bicarbonate by the mouth. As a guide to the amount to be given, I may say that you cannot give too much of the alkali so long as the urine remains acid in reaction. The object is to give sufficient of the drug to render the urine neutral or slightly alkaline. We hope to be able to pull this case through, but there are only a very few cases of recovery on record. Nearly all cases die within one to five days after the onset of the coma symptoms. The two essential points in the treatment of diabetic coma are to watch for early symptoms, and to institute treatment as early as possible, as you may thus avert an attack of diabetic coma, which in the majority of cases is fatal.

In this connection I may refer to one or two interesting points concerning blood examinations in diabetes. Two or three years ago Bremer de-

scribed a blood reaction by which he thought he could diagnose diabetes even in the prediabetic stage. His method consists in making thick smears of blood on slides, and as a control uses similar smears of non-diabetic blood. The two are heated in a thermostat up to 135° C., and, after cooling, the two slides are immersed in a 1 per cent. aqueous solution of congo-red and allowed to remain for one and one-half to two minutes. The normal specimen will be found to have taken on a red color, while the diabetic blood does not stain, or only takes a slight yellowish tint, if any color at all. He claims that the reaction is certain, even though the urine may be at the time free from a sugar reaction. Bremer has also found that diabetic urine dissolves certain analine dyes, whilst normal urine will not.

Williamson has also described a method of testing the blood which depends upon the fact that grape sugar reduces methylene blue solutions. Forty c. mm. of distilled water is placed in a tube, and to this 20 c. mm. of the patient's blood is added; to this add 1 c. c. of an aqueous solution methylene blue of the strength 1 to 6000, and finally 40 c. mm. of liq. potassae. The same procedure is gone through with, using a specimen of normal blood, and the two are heated in a water bath for four minutes. The diabetic blood will reduce or decolorize the methylene blue, while the normal blood will not, the contrast being quite striking.

THE BOGEY OF MEDICAL ETIQUETTE.

British Medical Journal.

There is a widespread opinion amongst the public that a rule of conduct obtains in the medical profession the object of which is to protect the profession and individual members thereof against the consequences of their ignorance or mistakes. Probably opinions differ as to the extent to which we are prepared to go in this direction, and perhaps few believe that we would go so far as to commit perjury or to sacrifice human life, but we certainly are supposed to be capable of suppressing the truth in order to avoid exposing the mistakes of a colleague. We admit that there are members of the medical profession who regard their patients as their property, and we believe that the petty tyranny sometimes exercised is responsible for the opinions upon medical etiquette which are undoubtedly entertained by the laity. But these extreme views are not endorsed by any representative body in the medical profession, and we are quite certain that we are expressing the general view when we say that the profession recognizes no other rules of medical etiquette than are consistent with the best interests of our patients and with courtesy and consideration for our colleagues. There is probably no profession whose members in their daily life are so frequently confronted with circumstances which try their tact and discretion to the uttermost in deciding what should or should not be said—not, be it noted, in the interests of the medical profession, but in the interests of their patients. No one would tolerate a doctor incapable of wholly or partially suppressing the truth on certain occasions, and if it be admitted that this is justifiable under any circumstances, we must be trusted to decide what those occasions may be, on the understanding that the interests of our patients take precedence of every other consideration.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, FEBRUARY, 1900.

THE PHYSICIAN AND THE LAWMAKER.

At every session of the Maryland legislature measures are introduced which, in one way or another, affect the interests of medical men. Some of them directly concern professional welfare, while others relate to matters of public importance with which the lawmakers cannot hope to deal wisely or effectively unless guided by the best medical experience and opinion. Where are the leaders of medical thought in Maryland while such business is hobbling ahead at Annapolis? Could the barbarism of trial by jury upon a charge of insanity have remained to this date the written law of Maryland if the concerted influence of an enlightened profession had been exerted against it?

If the medical men of this State should say that a modern commonwealth practicing no systematic registration of births and deaths is in that respect uncivilized, is there any doubt that the legislature would remove that imputation by enacting an effective vital-statistics law?

Even in so vital a matter as the regulation of medical practice we have not so far been able to propose a thoroughly well-considered measure. We have been endeavoring, at session after session, to amend errors which more careful consultation of the experience of other commonwealths would have taught us to avoid, and it has been the constant gibe of the legislators that we might have what we want if we could ask for it. If the manner of our asking has made this impression upon the Maryland Solons, it cannot be for lack of substantial agreement among ourselves. It is because we have not prepared our petitions well in advance, and have presented them without that appearance of concerted purpose, which more than anything else influences the average legislator. Organization is the lever. Something, indeed, depends upon the file-leader, but more upon the "line-up," and yet more upon the count of noses.

The present general assembly may be approached by the profession with great confidence. In the senate and in the house there are medical men who are fully capable of representing us and our needs, but it cannot be expected that they will expend upon any measure any greater energy than that derived from those whom they represent. Legislation is done only in response to demand, and the introduction of a bill is only the promise of demand. Everything not upheld by steadily-applied influence sinks in the current of legislation. Nothing floats by virtue of instrinsic merit. In committee, in the engrossing-room, on the clerk's desk, every measure left to its own specific gravity speeds unhindered to the bottom of the heap.

The enactment of the three measures in which the profession is just now interested will require, first, that some one shall keep each bill moving, and, next, that evidence of local demand for the proposed legislation shall reach Annapolis from all parts of the State. The first essential is already provided for. The second may be provided so easily that it is apt to be neglected. It is only necessary that a few medical men in each county, and in each legislative district of Baltimore city, shall write brief letters to their representatives asking them to vote for the measures.

THE OHIO STUDENTS AND THE PRACTICE ACT.

In their effort to secure the passage of an improved medical-practice act the profession in the State of Ohio has encountered opposition from the medical students. A considerable number of undergraduates are making an organized fight against the measure, and their demands reach pretty nearly the utmost limits of effrontery. They demand exemption from State examinations both for themselves and for everyone else desiring to practice medicine in Ohio. It is true that they profess willingness to be reexamined after graduation, provided the same requirement is imposed upon everyone now practicing medicine in the State. But since no one who is fitted for admission to a medical school can be ignorant of the constitutional obstacle to such a retroactive measure, it is likely that these young men are not misguided, but fully-informed partisans of a wide-open policy toward quacks of every degree. It is not conceivable that any man honestly seeking to become qualified to practice medicine will desire any other training than the best which his means will secure. It is no less certain that one who wishes to be certified rather than qualified will seek the most reputable trade-mark attainable. The best schools furnish both the best qualifications and the best trade-marks, but none are so good that further certification by the State will not materially enhance their value for business purposes. To the sincere and to the dishonorable postulant for the right to practice medicine the certification of the State is equally valuable, and will not be declined by anyone who can obtain it. Distrust of his own attainments is the only possible ground of personal opposition to a State examination. Fear, therefore, and fear only, is the cohesive substance which holds these students together, and such fear must be both widespread and well founded to have thus burst its customary cloak of silence.

This action has not only fixed a stigma upon the impertinent apprentices who took part in it, but it has also caused a deep and broad line to be drawn between them and another large body of students who have declared their wish to be qualified and also certified to the best ability of both the schools and the State. These latter are men who do not want to be made master-workmen on sight, and it is more than a reproof which they have administered to the unmannerly fellows who demand three degrees for one insolent knock at the outer gate.

KOPLIK'S SIGN.

It has been well said that in the exanthemata "diagnosis should never be made upon the rash alone." This dictum involves a severe comment upon

the methods which, for lack of laboratory aids, are forced upon us in the diagnosis of these affections. If diagnosis should not be made upon the rash, it cannot certainly be made without the rash. Before the period of eruption one cannot even be sure that an eruptive fever is in process of invasion, and diagnosis must be more or less random guesswork, while diagnosis on the appearance of eruption is sadly belated. These hours and days of conjecture are dangerous, and extraordinary interest attaches to any new means of early diagnosis.

The appearances of the visible mucous membranes in the various eruptive disorders have been long studied, and are described in all the textbooks. It remained for Henry Koplik to discover and to describe, in 1896, a lesion of the buccal mucous membrane, which is said to be associated only with measles, and in a majority of instances to precede the skin eruption by a considerable interval. It is likely that Flindt made the same observation some ten years earlier, but the phenomenon is now properly associated with the name of the later observer, who, discovering it independently, has been able to impress its value upon his contemporaries. The results of a special inquiry upon this subject are found elsewhere in the present number of the JOURNAL, and a partial analysis, following as nearly as possible the language of the witnesses, follows.

Of the 20 observers, 6 characterize the sign by the word "pathognomonic:" Hirsh, Libman, Lichtenstein, Ross, Sobel, Zahorsky.

The sign is diagnostic when present, according to 17 observers: Adriance, Blackader, Blanton, Cheney, de Saussure, Gilbert, Hirsh, Libman, Lichtenstein, Mitchell, Morse, Ross, Sobel, Taylor, West, Zabriskie, Zahorsky.

These three doubt its diagnostic value: Adams, Cameron, Cotton.

Absence of the spots excludes measles, according to 7 observers: Hirsh, Libman, Lichtenstein, Ross, Sobel, West, Zabriskie.

Absence of the sign does not exclude measles, 5 observers: Adams, Cameron, Cheney, Morse, Zahorsky.

The sign has been observed in advance of the eruption by 13: Adriance (20 cases out of 96), Blackader (in every case), Cheney ("frequently"), Gilbert, Hirsh, Libman, Lichtenstein (as early as 3 days before the eruption), Morse, Mitchell (48 hours before the eruption), Ross, Sobel (from a few hours to 5 days before the eruption), West, Zabriskie, Zahorsky.

ANTITYPHOID INOCULATIONS AT MILITARY STATIONS IN INDIA.

In the *British Medical Journal* of January 20 Wright and Leishman of the Army Medical School, Netley, publish an interesting account of the results of antityphoid inoculations, and of the methods of preparing the antityphoid vaccine. Nearly all of the inoculations were done late in 1898 or early in 1899 by one of the authors while on service with the Indian Plague Commission. All of the inoculations reported upon were of enlisted men. The results among officers were not obtainable. Two sorts of inoculating material were employed. One had been prepared in England a year before, and consisted of a sterilized bouillon culture of virulent typhoid bacillus. The other was a sterilized, fresh (24-hour) culture upon agar. But one inoculation was made in each instance.

The report covers periods of observation ranging from four to ten

months, the average being eight months. The whole number of soldiers at the fourteen stations was 8460, of whom 2835 were inoculated. Among the inoculated there occurred twenty-seven cases of typhoid fever, or 0.95 per cent. The incidence of typhoid upon the uninoculated was 213 cases, or 2.5 per cent. The mortality among the inoculated troops was 0.2 per cent.; among the uninoculated 0.34 per cent.

The authors call attention to certain circumstances which add much to the significance of these results. The inoculated men were for the most part recently arrived in India, young, unseasoned, and therefore more susceptible to typhoid fever than the older and acclimated men, who composed the great majority of the inoculated class. Furthermore, the inoculations were begun at several stations in the presence of epidemic typhoid fever. In one regiment five soldiers were admitted to hospital within nineteen days after their inoculation. In all there were six men inoculated while incubating typhoid, and these are properly uncounted in the summary. One hundred and forty-two uninoculated men are also uncounted in the summary on account of definite histories of previous attacks of typhoid.

These results, if not convincing, are certainly encouraging. The ratio of chances of attack in the inoculated to the chances in the uninoculated is as nineteen is to fifty. The ratio of mortality among the inoculated troops to the mortality among the uninoculated seems to have been as ten is to seventeen. The effect of the inoculations upon the fatality of the disease is not shown in the tables.

The preparation of the immunizing material presents unusual technical difficulties, which have been overcome in a most ingenious and interesting manner. It is by no means likely that either their technique, or their product, is as good as we may expect from the experimenters. Indeed, it is the reflection that such good results are so early reached which gives their work its present distinction, and its future promise.

The article includes an interesting note in reference to the observation made at several of the stations that the inoculated men seemed to enjoy exemption from "fever and ague," as well as from typhoid. That injections of dead typhoid bacilli should protect against malarial infection is, as the authors state, an *a priori* improbability, but perhaps worth further attention.

Editorial Comment.

WHO IS THE HUMANITARIAN?

Medical Standard.

There are many well-meaning people who feel called upon to reform something, and who, not content with the manifest sins of society which cry out all around them for plodding, personal work, must needs head some new "movement" where their abilities can attract attention. All this might give the "reformer" great satisfaction, while doing no one else any harm, if an effort were made to collect all available knowledge upon the matter to be "reformed" before he entered upon his crusade. But too often the calls of his "mission" cry out to him so loudly that he cannot wait to search for truth, since this calls for judgment, not sentiment. Just such leaders have been attracted to the antivivisection movement.

Book Reviews.

A Manual of Surgical Treatment. By W. Watson Cheyne, M.B., F.R.C.S., F.R.S., Professor of Surgery in King's College, London; Surgeon to King's College Hospital and the Children's Hospital, Paddington Green, etc.; and F. F. Burghard, M.D. and M.S. (London), F.R.C.S., Teacher of Practical Surgery in King's College, London; Surgeon to King's College Hospital and the Children's Hospital, Paddington Green, etc. In six volumes. Vol. I.—The Treatment of General Surgical Diseases, Including Inflammation, Suppuration, Ulceration, Gangrene, Wounds and Their Complications, Infective Diseases and Tumors. The Administration of Anesthetics, by Dr. Silk. Vol. II.—Treatment of Surgical Affections of the Tissues, Including the Skin and Subcutaneous Tissues, the Nails, the Lymphatic Vessels and Glands, the Fasciae, Bursae, Muscles, Tendons and Tendon Sheaths, Nerves, Veins and Arteries. Deformities. Philadelphia and New York: Lea Bros. & Co. 1900.

This work deals with the practical part of surgery rather than with the theoretical. Only so much of the pathology and clinical history of any affection is given as will best elucidate the treatment. The authors do not attempt to enter exhaustively into the treatment of surgical conditions, but to detail those methods which have given the best results in their own hands. To the young surgeon or busy practitioner these volumes will be found of great value as a ready way of acquiring the necessary information in regard to any given trouble, but they cannot take the place of the larger and more systematic treatises on surgery as text-books. Volume II treats of a large number of affections, the first 140 pages being devoted to deformities, which are treated in a concise and satisfactory manner, but without contributing much that is novel. Excision is recommended as the best treatment for moderate-sized carbuncles; incision and scraping for those which are extensive. A similar treatment is recommended for tuberculous ulcerations of the skin. The chapters on surgical affections of the tendons and nerves are very interesting and give a good illustration of the operative procedures which may be employed profitably in these traumatic conditions.

The last ninety-five pages of the volume are devoted to the treatment of the diseases of the blood-vessels, which is described quite thoroughly. In ligation of the innominate artery it is recommended to use two ligatures of silk laid side by side, and a reef knot made in each separately, and then the ends of both tightened simultaneously; a second or stay knot is made by tying the ends of both ligatures together. The illustrations, whilst numerous and perhaps sufficiently illustrative, are far from artistic in execution.

R. W.

A Text-Book of the Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D., Professor of the Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia, etc. Octavo. Pp. 1287. Illustrated. Philadelphia: W. B. Saunders; Baltimore: Medical & Standard Book Co.

In the rapid development of knowledge which is the distinguishing feature of modern medicine, a text-book to be abreast of the times must be frequently and extensively revised and rewritten. In the new (the third) edition of Anders' "Text-Book of Medicine" this necessity has been recognized, and much care and time have been expended in bringing the work well up to date. Among the new subjects treated of, splenic anemia is of interest in connection with the rapidly accumulating number of cases of this condition reported during the past few years. Another subject treated specially for the first time in this edition is ether-pneumonia, a subject of great interest to the surgeon, and yet rarely treated in more than a cursory way. Among the interesting points brought out by Anders in this connection are the percentage (.07 per cent. according to some, .23 per cent. according to other authorities) of cases so affected and the causes, the colder seasons, a previous pathological condition of the respiratory mucous membrane, exposure, and the character of operation being the important determining factors.

Perhaps the tabulation of the differential points in diagnosis between conditions which may simulate each other will appeal more to the medical student than to the graduated doctor, but the method of classification of the various diseases and the arrangement of the various headings and subheadings are based on the most rational lines, and will be appreciated by everyone.

The book is well, although not copiously, illustrated, and some of the illustrations are extremely good, notably several radiographic pictures of the osteal condition in rickets, arthritis deformans, etc., the pictorial charts of the origin, course and distribution of the various nerve tracts, and the illustrations of the blood in leukemia (reproduced from Grawitz), and of various pathogenic micro-organisms.

Taken all in all, the book is an extremely convenient, compact and well-arranged treatise on medicine, and should be of service to both student and practitioner. B.

The Diseases of Children. By Ashby and Wright. Fourth American edition. Edited by William P. Northrup. New York: Longmans, Green & Co.

The fourth edition of this admirable volume has been thoroughly revised and many of the chapters entirely rewritten. The book differs from most of the text-books on this subject in being the combined product of a physician and a surgeon, and presents in a desirable manner both the medical and surgical affections of children.

The work is largely based on personal experience, and the illustrations, which are numerous, are from photographs of cases that have been under the care of the authors.

The first chapters, dealing with the physiology of infancy and childhood, and the hygiene and diet of infants and children, differ but little from those

found in the majority of text-books on pediatrics. The subject of infant feeding is given due attention, and is brought up to date, as far as American or scientific feeding is concerned, by Dr. Northrup's additions in the appendix.

The chapters devoted to diseases of the digestive system may be regarded as typical of the remainder of the work in the happy combination of medicine and surgery. The authors present not only such diseases as stomatis, esophagitis, dyspeptic diseases, gastro-intestinal catarrh, indigestion, ileo-colitis, perityphlitis and the like, but also give a lucid account of the etiology and treatment of stricture of the esophagus, intestinal fistula, iliac abscess, congenital obstruction of the bowels, imperforate anus, hernia, piles, cleft palate, hare-lip and other conditions arising from failure of proper embryological development.

The diseases of the respiratory, nervous, genito-urinary and osseous systems are handled in a similar manner.

But little pathological detail will be found throughout the work, a feature rather to be regretted.

Fourteen plates of "*x*-ray" photographs add considerably to the value of the surgical side and illustrate the great strides in this method of diagnosis.

The formulae have been entirely rewritten to correspond to the U. S. P.

J. L. H.

Encyclopedia Medica, under the general editorship of Chalmers Watson, M.B., M.R.C.P.E. Vol. I.—Abdomen to Bone. New York: Longmans, Green & Co. 1899.

This is the first of a series of twelve alphabetical reference books of medicine and surgery. The only contributor from this side of the Atlantic appearing in the present volume is F. J. Shepherd, professor of anatomy in McGill University, who, in a 15-page article, treats of the appendix and its diseases. None of the articles are signed, and after reading notably divergent views upon some such important subject as anesthetics, one regrets that there is no complete index of authors. There are three articles on Anesthetics, the Physiology of Anesthesia, and Minor Anesthetics, by Dudley Buxton; Chloroform, by Alexander Ogston, and Ether, by T. Pridgin Teale.

The work promises to take full account of the tropical diseases, which are of such fresh interest in both England and America. There is a paper upon Ainhum, and one on Beriberi by Patrick Manson, and L. W. Sambon has a paper on Black-water Fever.

The article on Blood is by T. H. Milroy, and contains the only colored plate in the volume, a three-inch drawing, which can scarcely be said to illustrate the subject.

The preparation of books of this class is always extremely difficult, and this first volume does not guarantee the success of the set.

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A CASE OF PNEUMONIA TREATED WITH ANTIPNEUMOTOXIN.

By Charles B. Canby, M.D.,
Baltimore.

ALTHOUGH lobar pneumonia is one of the commonest and most fatal diseases of temperate latitudes, its treatment has hitherto been almost exclusively expectant and symptomatic. The importance of the disease as a cause of death in Baltimore is shown in the following extracts from the mortality tables for the city:

	1897.	1898.	1899.
Total mortality	9,329	10,385	10,151
Deaths from pneumonia	759	889	895
Ratio of pneumonia to total mortality	8.1%	8.5%	8.8%

Average for three years, 8.4 per cent. of total mortality.

The rank held by pneumonia among the communicable diseases in Maryland is second only to tuberculosis, which eminence pneumonia holds most likely because typhoid fever quite often escapes diagnosis, while lobar pneumonia is one of the most easily recognized diseases of this latitude.

In Maine, Massachusetts and Michigan pneumonia ranks second among the preventable causes of death, being outranked only by tuberculosis, and furnishing 6.5 per cent. of the total mortality.

The fatality of pneumonia in hospital practice is very high. Osler gives the fatality observed in eight large hospitals in the United States, Canada and England. The average for these eight hospitals is 26.1 per cent.

Andrew H. Smith gives a fatality among 458 cases at the Presbyterian Hospital in New York of 33.6 per cent.

The patient whose case I shall relate was twenty years of age. This is, perhaps, the period of most favorable prognosis. According to A. H. Smith, the fatality from fifteen to twenty is 23 per cent; from twenty to thirty, 22 per cent.

Frankel and Reiche give 10.05 per cent. as the fatality from eleven to twenty years, and 8.7 per cent. from twenty-one to thirty.

In Allbut's "System of Medicine" the fatality from fifteen to twenty years is said to have been five out of forty-eight cases, 10.4 per cent.; from twenty to twenty-five years, forty-five cases, with nine deaths, 20 per cent. An average of all these estimates would give us 15.9 per cent. as the fatality under ordinary treatment at the age of twenty years.

The general fatality of pneumonia is so great that the demonstration of a specific treatment would be most welcome, and the possibilities of serum therapy have been industriously worked. F. Klemperer, in 1891, succeeded in immunizing rabbits against the micrococcus of pneumonia, and found that the blood serum of these immunized animals, injected into the veins of other rabbits, protected them against fatal doses of the virulent organism. He used upon rabbits 8 c. c. of the protective serum. He also injected six cases of pneumonia in man with doses of from 4 to 6 c. c. of the serum of immunized rabbits, and noted a considerable fall of temperature in every instance. Not much could be expected from the serum of rabbits. The small size of the animal made it impossible to produce considerable quantities of serum of anything like uniform quality.

Washburn, Pane and de Renze all succeeded in immunizing horses against the pneumococcus, and found that the serum so produced had often an apparent effect in modifying the severity of pneumonia. Pane reported nine cases treated with his serum, death occurring in one case, and he insisted that in pneumonia, as in diphtheria, the chances of success with antitoxin lessened as the treatment was delayed.

Maragliano reported five cases in which the serum seemed to him to have reduced the temperature, brought about general improvement and shortened the duration of the disease. A number of other Italian observers have claimed favorable results for the antitoxic treatment of pneumonia.

As the pneumococcus is of very variable virulence, and does not maintain its characteristics well under laboratory conditions, the preparation of the antitoxin requires, first, that a virulent organism shall be obtained, and then that its virulence shall be kept up. An organism of increased virulence can be obtained by cultivation through a series of guinea-pigs. After a sufficiently virulent organism has been produced its qualities are said to be maintained by growing it on a special medium, described as agar streaked with rabbit's blood. These virulent organisms are injected repeatedly and in increasing doses into the tissues of a horse, or other large animal, until a high degree of tolerance is produced. The serum of these immunized animals is standardized experimentally in the same manner as diphtheria antitoxin is standardized. The dose for a human adult is about 12 c. c., though Pane has used as much as 120 c. c. upon a patient in twenty-four hours.

The following table has been obtained from an excellent ac-

count of this subject by Thayer in *Progressive Medicine*, March, 1899:

Observer.	Cases.	Recovered.	Died.	Fatality.
Pane	9	8	1	12.50%
Maragliano	5	5	..	....
Caruso and Staginitta	2	2	..	....
Gamba	2	2	..	....
Marone	1	1	..	....
Cantieri	17	15	2	11.8%
Fanoni	1	1	..	....
Totals	37	34	3	8.1%

CLINICAL HISTORY.

I was called on December 20 to see E. T., twenty years of age, who worked in the molding-room of a large stove factory. The family history contained nothing of interest, nor did the past personal history, except that he had an attack of pneumonia five years ago. His present illness began on the 18th, and may have been in a measure due to his having worked all day (on the 16th) in wet clothing.

The attack began with a chill on the 18th of December. When

seen at noon on the 20th he was in bed, with cough and pain in the left side. He expectorated a large amount of rusty sputum, and had a temperature of 104°, pulse 120, and respiration 24. The physical signs were increased vocal fremitus, bronchial breathing and dullness on percussion over the lower lobe of the left lung. Consulting the chart, it will be seen that crisis apparently occurred

on the 24th. Up to this time the patient had been treated with alcohol and digitalis, with one or two doses of morphia to quiet pain. On Christmas day, feeling very much better, the patient most imprudently left his bed, dressed, and went into the yard.

On the 26th I found him in bed delirious, with a temperature of 104°, respiration 56, and a pulse that could not be counted. The pain was severe on the right side, and the physical signs were those of consolidation of the right lower lobe. At 6 o'clock in the evening his temperature had risen to 105°, his pulse was still uncountable, and his respirations were fifty-six to the minute. At this visit I injected 12 c. c. of antipneumotoxin. In three hours his temperature fell two and one-half degrees, he was sweating freely, and his respiration came down to 40, but his pulse remained uncountable.

At 10 o'clock on the morning of the 27th his temperature was 99°, respiration 24, and pulse 96. Notwithstanding his apparent improvement I gave him again 12 c. c. of the antitoxic serum.

As may be seen by the chart, his improvement was not interrupted, and on the 8th of January, 1900, he was able to return to his work.

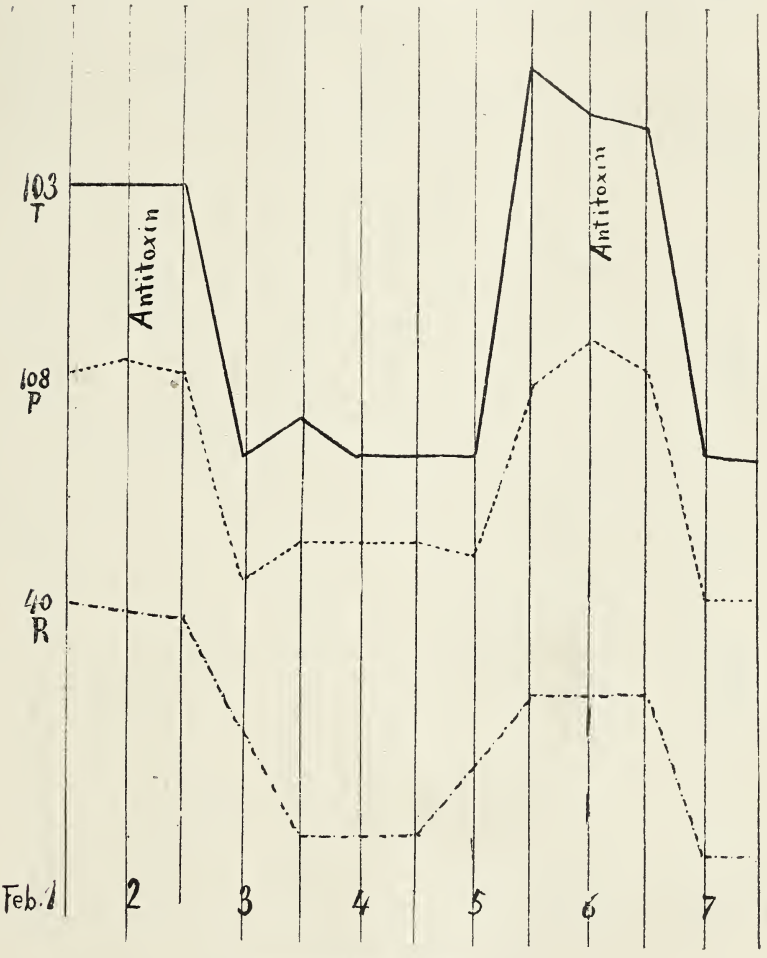
This clinical history, showing a left pneumonia having crisis on the eighth day under ordinary treatment, followed by a much severer right pneumonia which came to apparent crisis in two days, suggests that the antitoxin might have produced a much earlier crisis than the first attack would have led one to expect. Indeed, the second attack seemed to be of extraordinary severity and likely to result fatally. One must not draw conclusions from a single case, but the record of this case seems worth publishing, because it seems, in effect, to have been two attacks of pneumonia in the same subject, treated upon widely different lines, and with strikingly different results.

Through the courtesy of my friend, Dr. George H. Everhart, I am able to append the following brief notes of two cases of pneumonia in which he used antipneumotoxin:

Eli P. J., a driver, was seized with a chill on January 13. When first seen on the night of January 14 he had a temperature of 103°, pulse 110, rapid respiration, cough, rusty sputa, and the physical signs of consolidation of the lower lobe of the right lung. On the following morning, the 15th, the man was in substantially the same condition, and in the evening of that day he received a hypodermic injection of 10 c. c. of antipneumotoxin. On the morning of the 16th (fourth day in bed) he was in a profuse sweat, having a temperature of 99°, and with pulse and respiration much improved. On the 20th his temperature was normal, and on the 24th was up and apparently well.

On Tuesday evening, February 1, Kate C., aged [illegible]enty years, was found ill with pneumonia, the signs of con[illegible]ion being apparent everywhere over the right lung; tempe[illegible]re 103°, pulse 108, respiration 40. On the morning of February 2, her temperature being at the time 103° and pulse 110, she received by hypoder-

mic injection 10 c. c. of antitoxic serum. At the evening visit her temperature was 103°, pulse 108, respiration 33. On the morning of February 3 her temperature was normal, pulse 80, and respiration 20. She was in all respects comfortable, and remained so until the 5th, when she sat up in bed. In the evening she had a chill and a rise of temperature to 105°, with a respiration rate of 32. Next morning she was again injected with 10 c. c. of anti-



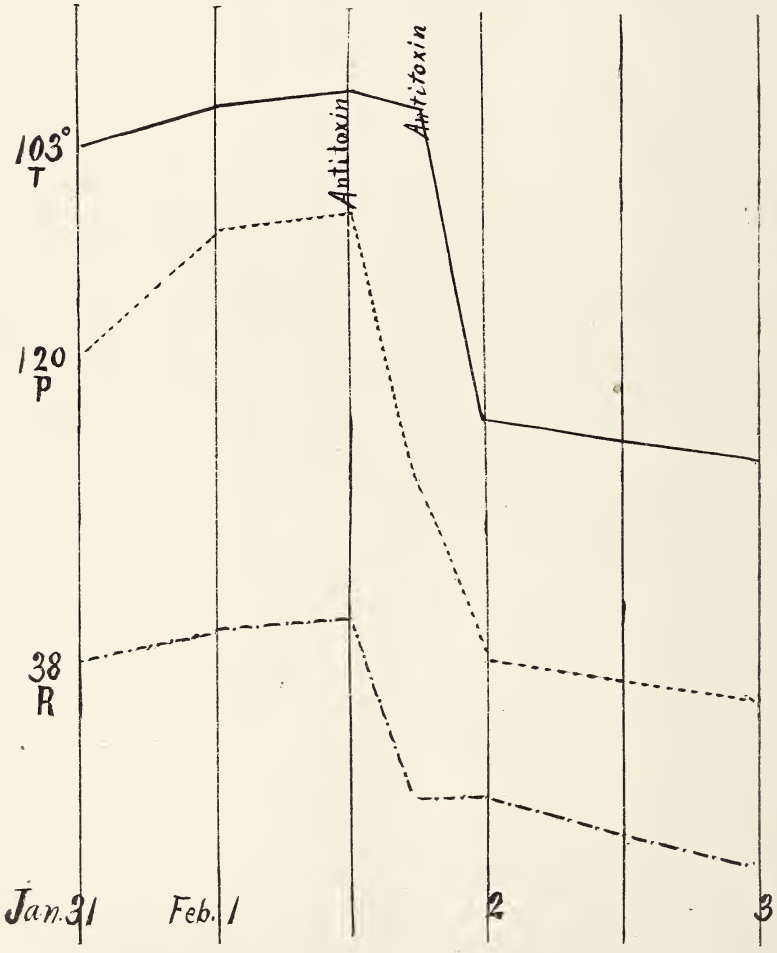
DR. EVERHART'S CASE, KATE C.

pneumotoxin, her temperature then being 104.2°, pulse 113, respiration 32.

As happened after the first injection, very little change in her condition was apparent at the evening visit, when her temperature was 104°, pulse 108, respiration 32. On February 7, twenty-four

hours after the second injection, her temperature was normal, pulse 70, respiration 18. From this time on her convalescence was uninterrupted, and on the 12th of February she was discharged.

I am indebted to Dr. Louis F. Frey for the following notes of a case in his practice, together with Dr. Stokes' report upon the sputum:



DR. FREY'S CASE, W. S.

"W. S., driver of an express wagon, had a chill on the afternoon of January 30, followed by fever, headache, and pain in the chest and abdomen. I saw him for the first time at 9 o'clock in the evening of January 31. He had a temperature of 103°, pulse 120, respiration 38, cough, and rusty-brown expectoration. The physical signs were moderate percussion dullness, increased vocal fremitus, and fine crepitant and bronchial rales on the left side.

"He was put on five-grain doses of carbonate of ammonia. On the following morning he was no better, his temperature having risen to 103.6°, pulse 138, respiration 40; at 4 P. M. his temperature was 103.8°, pulse 140, respiration 42. At this visit I gave him 20 c. c. of antipneumococcic serum. At 10 P. M., temperature 103.6°, pulse 102, respiration 28, headache and pain better, but percussion dullness much increased. A second dose of serum, 20 c. c., was injected. At 9 A. M. on the following day (February 2), temperature 99°, pulse 76, respiration 28; next morning his temperature was 98.4°, pulse 70, respiration 23, and he had slept well during the night.

"Up to this date (February 14) his temperature has remained normal, and he seems well, but I have not yet permitted him to go out.

"Two specimens of his sputum, submitted to Dr. Wm. R. Stokes, were reported on as follows:

" 'February 1, 1900.—The sputum shows a dusty light-brown color, and is streaked with blood. Fresh examination shows areas where the red-blood corpuscles are in excess when compared with the pus cells, and other areas where the pus cells are greatly in excess. Specimens stained with Stirling's gentian violet show a few typical pneumococci, with unstained capsules, but no organisms are seen inside the pus cells. There are also present numerous large cocci and a few bacilli.

" 'February 2, 1900.—The gross appearance of the sputum is the same as on yesterday, and the examination of a fresh specimen shows no change. Specimens stained with gentian violet show a greater number of pneumococci, and at times these organisms are included within the protoplasm of the pus cells, showing a phagocytosis. There are very few other organisms present.' "

A CASE OF TETANUS, PROBABLY INFECTED THROUGH THE MOUTH.—Dr. E. K. Loveland (*Medical Record*, March 3) reports the case of a child of twenty months whose only illness was announced by a sudden and painful awakening from her afternoon nap. Her sleep had continued to be interrupted in this manner for two days, when she was passed from the awakening cry into a convulsion. When examined she had a temperature of 100°, and a tense, rapid pulse. Her jaws were fixed, and inspection of the throat was impossible. No signs of injury were discovered, save a slight scratch, said to be three weeks old, on the leg, and a very small scar over the left eye, where a dog had bitten her five months ago. Nothing in the history of the injury or of the dog suggested rabies. Considerable ropy, ill-smelling mucus, and some pus were discharged from the child's mouth and nose. The spasms and opisthotomos increased in spite of treatment. Antitoxin was refused by the parents. On the day of the child's death the jaws relaxed so far as to permit an examination of the throat, when a large sore on the back of the mouth was revealed. The parents now recalled that two or three days before her sickness began the child had played for some time with a kit of cobbler's tools belonging to her father. Loveland believes that these implements, to which more or less earth was adherent, furnished the infection.

CHANGES IN THE SKIN IN PARALYSIS AGITANS.

By Robert Reuling, M.D.,

Assistant in Neurology, Johns Hopkins Hospital; Demonstrator of Neuropathology at the University of Maryland.

READ BEFORE THE CLINICAL SOCIETY OF MARYLAND, DECEMBER 1, 1899.

Valuable additions have been made to our knowledge of paralysis agitans in the last two years. The pathology of this disease can now certainly be said to possess at least the beginnings of a solid foundation. This is due to the introduction in the last few years of more delicate staining methods into neuropathology, the most important being the cellular stain of Nissl, which has done so much to clear up the finer architecture of the nerve cell, and has revealed the presence of the so-called "Nissl bodies," which are composed of protoplasmic substances, which stain deeply in contrast to an unstained protoplasmic matrix. These stainable portions are believed to show a definite relationship in their structure and staining properties between the normal and pathological nerve cell. The method of Marchi, which shows the more delicate changes in the myelin of the nerve fibers, and the specific stain for neuroglial fibers of Weigert, and that of Mallory, have been the means by which these results have been obtained. Further study will be necessary before any definite conclusion can be formed. One sees that the changes found by different authors show considerable variation, and this is partly due to the varying importance different observers attach to changes revealed by the delicate staining method employed. We must also remember that the great majority of cases of paralysis agitans come to autopsy at an age when the nervous and other structures of the body show certain degenerative changes, and these must be considered before arriving at conclusions. Fortunately, recent literature contains several instances of this disease, with careful studies of the pathological changes in subjects between the fourth and fifth decades of life. Almost all the recent work agrees in finding changes of a degenerative character in the motor cells of the nervous system, but, strange to say, one author finds them by far more marked in the anterior horn cells of the spinal cord (Dana[1]), and only slight changes in the motor cells of the cerebral cortex, while another observer (Philipp[2]) finds just the opposite relationship in his case, for in his pathological descriptions the motor cells of the cortex (Purkinje cells) show well-marked changes in Nissl specimens, while the spinal-cord cells were about normal. In Dana's case the Marchi method showed changes in several of the peripheral nerves examined, whereas in Philipp's case this method revealed practically no changes, excepting those seen in the peripheral nerves in any individual dying in advanced age (60). There

is also considerable variance of opinion as to the importance of the muscular changes in this disease. Philipp found none, while Dana found marked variations from the normal in his case, especially in Marchi specimens.

Another addition to our knowledge of the pathology of this disease is the finding of certain changes in the skin which were first described by Frenkel[3] of Switzerland, and consist principally in a thickening of the skin and loss of its elasticity. These changes, as described by Frenkel, will be referred to more in detail.

In this connection it may be well to speak of the so-called frontalis symptom, described in 1898 by Motschutkowski, and which this observer claims is found in the great majority of cases of paralysis agitans, and therefore of diagnostic importance, especially in cases showing atypical tremor, or in those cases which present no tremor whatever (paralysis agitans sine agitone). This frontal symptom consists in the fact that the folds of the skin of the frontal region, formed during contraction of the frontalis muscle, remain as deep folds for some time after this muscle has been relaxed. It is best brought out by getting the person examined to look upwards for one or two minutes, and then look downwards, when the deep wrinkles in the forehead will persist, and slowly disappear in three or four minutes. This symptom was originally attributed to changes in the elasticity of the muscle, but Frenkel believes it is due to a thickening of the skin. He also attributes the expressionless facies of paralysis agitans to these skin changes, especially to the loss of elasticity, interfering with the movements of muscles employed in facial mimicry.

As to the character of the changes themselves, Frenkel describes them about as follows:

"There is a well-marked palpable thickening of the skin, which, as a rule, has an irregular distribution. Frequently the skin covering an entire extremity will be found thickened, while the corresponding member of the opposite side will be normal in this respect, or show only a slight change. With this more diffuse thickening there are, as a rule, smaller areas where a more marked circumscribed thickening is felt. What is very striking is the adherence of the skin to the subcutaneous tissues, so that it may be impossible to squeeze it into folds in regions of the body where this is readily done in the normal state. The most marked change is seen on the forehead, though the skin of the extremities allows a better comparison to be made between the two sides of the body. The general appearance of the thickened skin hardly differs from the normal, so that only by careful palpation and comparison of folds of skin over symmetrically-situated regions can the difference be detected. This procedure will also show the loss of elasticity in different regions, and the adherence of the skin to the subcutaneous tissues."

Frenkel believes that the neuralgic pains and various paresthesias met with in this disease, and especially located in the extremities, can be best explained by these changes in the skin.

I must agree with this author that the pains can be thus explained. The patient himself usually locates the pain in the skin rather than in the underlying muscles, and from a careful microscopical study of the case here reported, in which these neuralgic pains and paresthesia were present in the thickened skin of the upper right extremity, I believe that the constrictions of the sensory nerve supplying the skin by bands of fibrous tissue explained the pain. Through the kindness of Dr. Thomas I am able to report the following case and to show the microscopical sections of the skin. In this latter respect the report of Frenkel was incomplete:

Margaret C., single, aged fifty-nine; formerly followed the occupation of seamstress; came to the dispensary of the Johns Hopkins Hospital complaining of shaking of the left arm, and some pains in this extremity. Her family history is negative, excepting that two sisters and two of her brothers died of pulmonary tuberculosis; no history of paralysis agitans or any other neurosis to her knowledge in any other member of the family. She had typhoid fever at twenty, but made an uneventful recovery, with no sequels; remembers no other serious illness. Has never been addicted to the use of alcohol, but has always indulged in rather excessive quantities of tea. No history of lues, or of trauma, or of severe fright, or mental shock.

Present Condition.—In March of 1897 the patient first noticed a slight tremor affecting the fingers of the left hand, and these felt stiff, which was especially noticeable when sewing. This tremor, according to the patient, appeared quite suddenly, increased rather rapidly, and within three or four months after onset the entire upper left extremity was tremulous. For the last six months a slight tremor appeared in the left lower extremity, but only when patient feels excited (at the examination this tremor could be distinctly seen). For the last four months she has been very much annoyed by pains radiating through the left upper extremity, which the patient locates on the skin surface, and are described as peculiar burning pains, rather lancinating, and frequently passing along the entire extremity, more especially in the acute exacerbations. She is also annoyed by a feeling of painful tension, and pulling of the muscles in this extremity. Sleep has been much disturbed on account of these pains, and patient believes this has caused increase in the tremor, and more or less breakdown in her health and general muscular strength. Attempts at active and passive movements increase the pains in this extremity very much, so that she cries out when we attempt to raise the arm. She feels that the entire left side of her body is weaker than the right, and in walking the left foot seems to drag. So far no tremor has been noted on the right side. Her friends have remarked the change in the expression of her face in the last year or so, and say she looks "so much older." Vertigo has been very marked at times, but she has never fallen. Her memory is better for long past events than for the more recent. Formerly it was exceptionally good. Eyesight and hearing good; no history of diplopia; taste apparently normal.

Physical Examination.—A fairly well-nourished woman, with subcutaneous fat well preserved; looks a trifle pale, and shows the expressionless

facies (mask face) of paralysis agitans; looks straight ahead, and rarely makes an attempt at lateral movements of head. When she laughs the usual facial mimicry is almost absent, and there is only a slight attempt at a smile. The eyes show the change in merriment more than the face. No evidence of any marked paresis of any facial muscle. The frontal region shows deep folds in the skin; Motschutkowski's frontal phenomenon well marked; palpation reveals a marked thickening in the skin of the frontal region, and it is very adherent to the underlying tissues. Moderate sclerosis of radials, but blood tension is about normal, and temporal veins not prominent or sclerotic. The gait is peculiar, and during locomotion the trunk is inclined forward, and the head is inclined toward the chest, left shoulder hangs lower than right, while the left forearm is held in a somewhat forced position on the abdomen; the fingers show tremor, and more or less typical pill-rolling motions. The entire upper extremity is involved in this tremor, more especially the forearm. The tremor ceases almost entirely for a few seconds when patient attempts to pick up an object, and also apparently during sleep. During the examination a slight tremor affects the entire left lower extremity, but this ceases as patient becomes more at ease. No tremor of facial muscles or the extremities on the right side. There is a marked rigidity in all the muscles of the left upper extremity and on both sides of the neck. It is less marked in those of the left lower, and absent in the extremities of right side. Patellar reflexes slightly exaggerated. No ankle or patellar clonus elicited. No Romberg symptom. Pupils equal, and react to light and accommodation. Eye muscles normal; no nystagmus. Examination of heart and lungs negative.

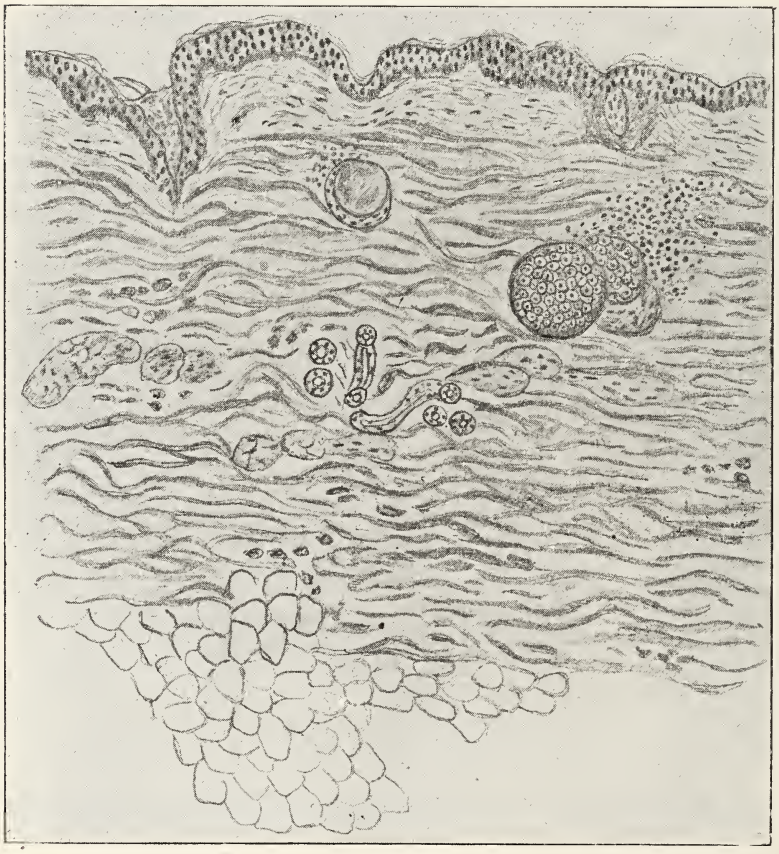
Changes in the Skin.—On comparing the skin in the upper extremities one sees very little change on inspection. All that can be said is that the skin over the extensor surface of the left forearm looks slightly glossy, and has the appearance of being stretched. On palpation one is struck by the difference in the thickness of the skin of the upper extremities. On the left a diffuse thickening can be made out, reaching from the lower third of forearm to the shoulder, and even extending over the left scapular and subscapular regions. Besides this more evenly distributed change, there are circumscribed areas where the increase is more marked. One of these is seen over the triceps region, and another, about the size of an infant's hand, over the upper third of forearm on its extensor surface. The skin over the left extremity is more adherent than that of the right. Over the left half of the back, especially in the scapular region, the skin is also thickened, and very adherent to the underlying tissues. Unfortunately, the skin over the lower extremities was not examined.

In order to study these skin changes more accurately, a piece of skin was removed from each upper extremity, under cocaine anesthesia, at a point five centimeters above the elbow. On cutting through the skin the difference in the thickness of the two sides is very apparent, the section removed from the right side measuring two millimeters, while that from the left side measures four millimeters. Consulting the article of Frenkel, it will be found that in one of his cases he estimates by a special instrument a difference of two millimeters in the thickness of the skin on the two sides of

the body, and although his method is less accurate than the direct measurement of removed portions of skin, still he obtains practically the same result.

The sections removed were placed in formol (10 per cent.) for three days, mounted in celloidin, and stained by the usual hematoxlin-eosin method. Van Giesen's and picrocarmine stains were also used, the last named giving the most satisfactory results.

On examining these two sections under the low-power lens, one



Thickening of the Skin in Paralysis Agitans, Showing Increased Connective Tissue Growth in the Cutis Vera.

is immediately struck with the fact that the differences in thickness are almost entirely due to changes in the subcutaneous connective tissue and cutis vera, the fibrous tissue of which is markedly increased in the skin removed from the left arm, and perhaps slightly so in that removed from the right arm. As a rule, the fibers are arranged in rather coarse bundles, and most of them run a very wavy longitudinal course. The bundles of fibers certainly seem

a trifle broader and coarser in the thickened skin, but that comparison only holds good in a general way, for in some areas in the unaffected skin there are bundles of very coarse, broad fibers, but these are much less numerous than in other sections. In the picrocarmine specimens the difference between the fibrous tissue and the muscle bundles is well shown, and it is evident that the change in thickness is due entirely to an increase in elastic and fibrous connective tissue. In the thickened skin several rather broad bands of connective tissue are seen which pass obliquely into the portion of the cutis vera which lies immediately under the epidermal layer. It may be that these bands cause the skin to adhere to the subcutaneous tissue. The glandular elements and appendages of the skin showed no abnormalities. There is, however, a slight difference in the depth of the papillae in the two sections. In the thickened skin these are less marked, and in general the epidermal layer has a less wavy outline than in the other section. This is probably caused by the loss of the finer skin folds from the connective tissue increase, and this smoothing out of the epidermal layer probably gives the thickened skin its peculiar glossy appearance. Several tactile corpuscles were found in the sections of thickened skin, two resembling in their morphology and situation between cutis vera and the subcutaneous connective tissue the corpuscles described by Ruffini.[4] So far as we can judge in specimens stained by the eosin and hematoxylin, and picrocarmine methods, there is no evidence that these bodies have been encroached upon by the increase of connective tissue, but it is not improbable that the nerve fibers passing to these tactile corpuscles may be compressed in their course, most likely in the subcutaneous connective tissue layer. The study of the nerve endings in the skin, and especially in muscles, in diseases of these structures, with the aid of our present excellent staining technique, would no doubt lead to valuable results.

In conclusion, after examining six cases which show the typical clinical picture of paralysis agitans, and finding, to a variable extent, in four of these cases the skin changes described by Frenkel, I can only agree with this author so far as to say that such changes frequently occur in this disease. They will perhaps be found in the great majority of cases, but may be absent in cases otherwise in all respects typical examples of paralysis agitans. The absence of these changes would, as yet, not negative a diagnosis of paralysis agitans. Although the thickening of the skin occurs in regions where no tremor occurs, so that no direct relationship is demonstrated between the tremor and the skin changes, nevertheless the thickening is almost without exception more marked on that side of the body upon which tremor first appeared. I believe these changes of the skin explain many of the clinical manifestations, especially the changes in facial expression, the frontal phenome-

non of Motschutkowski, and to a certain extent the neuralgic pains and paresthesias.

As to the cause of these changes, one can as yet only speculate. I do not agree with Frenkel that they are due to some toxic substance in the circulating blood, that the central nervous system may be only a secondary factor in this disease, and explaining all the symptoms upon the conception of an idiopathic disease of the muscles and skin resembling the diseases due to altered metabolism, such as myxedema and Graves' disease.

These views have something in their favor, but paralysis agitans seems better explained by considering it a primary affection of the central nervous system, and regarding the thickening of the skin as a trophic phenomenon, directly dependent on changes in the nervous tissues, and the pathological changes in the muscles as also dependent on a disease of the central nervous system.

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A Case of General Paralysis of the Insane in Childhood.—An interesting case is reported in the *British Medical Journal*, April 1, 1899. A girl, showing evidence of hereditary syphilis, was observed to grow backward at school when between ten and eleven years of age. Mental dullness and increasing irritability of temper were also noted at home. Between twelve and thirteen fits appeared, her speech became affected, her knee-jerks were much exaggerated, and her mind steadily deteriorated. During this time she grew very fat, but after fourteen she emaciated. Hallucinations appeared at this time, the fits continued, and she died at the age of sixteen years and eleven months.

At autopsy there was no trace of subdural membrane found. An opaque pia-arachnoid was everywhere adherent to the brain. The cerebral convolutions were atrophied, and the sulci dilated. The atrophy, while apparent everywhere, was most marked in the frontal and parietal regions. The characteristic changes of general paralysis were found in the nerve cells, in the neuroglia, and in the vessels, in microscopical sections of the cortex from various regions.

ELECTROLYSIS AS A MEANS OF CURING CHRONIC GLANDULAR URETHRITIS.

By George Walker, M.D.,
Johns Hopkins Hospital, Baltimore.

DURING my attendance upon Kollman's surgical clinic at Leipsic I became acquainted with a method of treating chronic glandular urethritis by electricity, which is quite extensively used throughout Germany, and has proved a quite valuable addition to the treatment of this very obstinate disease. I have employed this method in a number of cases, and have found it eminently satisfactory. By its use a number of old chronic cases have been cleared up which had resisted all other forms of treatment. It is intended mainly for the condition in which the disease has involved the glands of Littré and the crypts of Morgagni.

In the normal urethra Littré's glands are scattered closely here and there throughout the spongy portion of the organ, being most numerous about its middle and toward the bulb. In the membranous and prostatic divisions these glands are so few that disease of them in this region is not of practical importance. The individual glands are built on the racemose type, and vary in size from a pinhead up to those which measure one-quarter of a millimeter in depth by one-sixth in width. They are lined with a low columnar epithelium, around which there is an intimate plexus of small blood-vessels. They communicate with the urethra by a very small canal which is directed obliquely forwards, the orifice being extremely small, and so arranged that its upper border acts as a valve, which closes during the passage of urine. A fine network of elastic tissue serves to keep the canals closed and prevent the continual escape of their secretion. The secretion is a sero-mucoid fluid of alkaline reaction, and about the consistency of saliva.

In the diseased state these glands can readily be recognized by endoscopical examination. Thus seen there is a slight bulging of the urethral mucous membrane, which corresponds to a swollen or distended gland. In the center of this elevation is a slight depression, which is the glandular orifice. Around this for a distance of from one-half to one millimeter there is a red hyperemic zone, which gradually fades off to the normal tissue. In some places only a red elevation can be noticed, the mouth not being discernible. In other glands a thick plug of secretion protrudes from the opening. In a few only a red dot is visible, no swelling nor orifice being apparent.

The application of electrolysis to inflammation of these glands was originated, in 1889, by Oberlaender, but was used only to a limited extent until a few years later, when Kollman devised a new instrument, which has simplified it, and rendered it very much more practical. The instrument which I here describe was con-

trived by Kollman, and passes under the name of the Kollman electrolytic needle. It is a slender steel or German-silver sound, about eight inches in length, gradually tapering toward the distal end, at which point a delicate platinum needle is affixed. The other end is bent at a right angle, and the tip bears a flat, heart-shaped metallic piece, which serves as a handle, and for the attachment of the electrode. The body of the instrument is insulated by a rubber cover. When required for use this is attached to the negative pole of an ordinary galvanic battery. The positive pole is connected with a sponge electrode, which is furnished with a cut-off button in the handle. When the patient is ready the sponge electrode is moistened and placed on the perineum or the groin (preferably the latter); the glands are then found by means of the endoscope, and the mucous membrane thoroughly cleansed with a cotton sponge, so that nothing obscures the field of vision. The needle is then carefully introduced through the tube and inserted directly into the orifice of the gland for a distance of one-half to one millimeter. It is then steadily held and the circuit made. In from fifteen to twenty seconds a white froth can be seen exuding upward around the needle. This action is allowed to continue for from thirty seconds to three minutes, when a distinct collection of white foam is apparent. The circuit is then broken and the needle carefully removed.

The electrolyzed area appears as a white spot, due to the accumulation of foam above mentioned. After wiping this off, the place is visible only as a minute, bloodless, punctured wound. Kollman advised a seance of three minutes for each gland; but with the dry chloride of silver battery which I am using I have found that forty seconds is sufficient.

From three to five glands are usually destroyed at each sitting. There is very little pain, and the use of cocaine is not required. The destruction of the gland is by the electrolytic action, and not by cauterization. The proper strength of the current should be from four to six milliamperes. This can be most accurately determined by a milliamperemeter, but can be practically obtained by employing a number of cells in series until the desired electrolytic action is obtained.

Following this treatment there is set up a decided urethritis, accompanied by a copious purulent discharge, which lasts for several days, and is best treated by some mild astringent, or by irrigations with boric solution.

A urethral examination on the second day reveals a minute sloughing area at the seat of puncture, around which there is a very intense congestion. The discharge is made up of pus containing a large amount of necrotic debris and micro-organisms. After the irritation has entirely subsided, which usually requires from seven to ten days, other series should be destroyed, and so on until all the diseased glands are obliterated. The usual number of infected glands varies between fifteen and thirty.

It is necessary to use this treatment with due precaution. Care must be taken not to subject the glands to the electric action longer than is necessary, in which case the destruction of tissue may be followed by considerable inflammation. Glands in the immediate vicinity of each other should not be destroyed at the same sitting, as the local irritation might produce swelling enough to interfere with micturition. In a certain number of cases, owing to the formation of a cicatrix, strictures have developed which have given rise to some annoyance. This can be avoided, however, if due care is observed.

In the selection of cases for the application of this treatment it is necessary to cure, so far as is possible, the superficial infiltration of the mucous membrane before the diseased glands become sufficiently isolated to be seen. Treatment in the same manner by a cauterizing needle has been employed, but it is more dangerous, in that it destroys too much tissue, and is followed by a rather extensive cicatrix. In careful hands the method above described is entirely devoid of danger, and will serve as a means of curing many otherwise intractable cases of chronic urethritis.

EXSTROPHY OF THE BLADDER FROM ULCERATIVE DESTRUCTION OF THE SCAR OF A SUPRAPUBIC CYSTOTOMY.

By Louis Kolipinski, M.D.,
Washington, D. C.

I RECORD the following case because of its unique nature:

A man of sixty years, short, stout and well preserved, had been operated on for vesical calculi by the suprapubic method in Vienna, Austria. Thirteen stones were removed. The incision was allowed to remain open, and closed spontaneously in about four weeks. Some months later another calculus was removed by crushing. After this his health was completely restored, and he remained well for three or four years. He had been in ill-health for about a month before he came under treatment, but could not clearly describe wherein or how he had been affected during this time.

He complained of frequent and painful urination, of pain and tickling along the urethra, of sudden intermissions in the flow of urine, of straining and protrusion of the anus during the act, and of pains in the loins. He feared that these symptoms were those of stone in the bladder, with which he had been but too well acquainted in former times.

The urine was that of chronic cystitis, containing much pus and mucus. During the three succeeding days his vesical distress

became more moderate, the composition of the urine remaining unaltered. He then perceived a swelling on the right side of the lower abdomen at the level of the cicatrix of the cystotomy. On examination there was found an enlargement about the area of the palm of the hand, slightly elevated, not painful, and the skin over it was of the natural color. The next day the swelling had become bilateral, crescentic in outline, and its center was composed of the scar, which likewise had become elevated, bulging and quite thin. At the end of another twenty-four hours the scar tissue had grown thinner, had taken on a bluish color and seemed about to rupture. The swelling on both sides was now more prominent, the skin reddened and hard. There was no local or general increase of temperature. Up to this time his desire to void the urine was very frequent, recurring hourly or oftener. With the onset of local redness, tenderness, and increase in the size of the swelling, the desire ceased suddenly and permanently, and for twelve hours no urine was expelled or extracted. As it was apparent that the bladder was about to burst at the site of the cicatrix, and that the swelling was due to an extravesical urinary infiltration, the scar tissue was incised, and at the same time more than a pint of urine was drawn with a catheter through the urethra. The suprapubic opening drained the bladder completely. An exploration of its interior found no calculus present.

As stated, the patient suffered no further vesical pain of any description. The bladder was washed out twice a day with a boric-acid solution. The following day the opening of the incision was increased by sloughing of the scar tissue, and the posterior and superior walls of the bladder were protruding through the opening. The presenting mucous membrane was grayish-white in color and heavily coated with a layer of muco-pus. The diameters of the completed exstrophy were two and one-half inches in a vertical and two inches in a transverse direction. With this free, spontaneous drainage of the bladder, the bilateral swelling and redness of the abdominal wall rapidly disappeared. The patient's temperature remained normal or subnormal throughout his illness. At times he complained of severe epigastric oppression, making breathing painful. The bowels were not constipated.

He was seized with paroxysms of vomiting, the matter being of a deep green color; later the vomiting became more prolonged, and the fluid ejected grew black and watery. His mind was clear and unconcerned. He expired suddenly on the fifth day after the opening of the bladder. During the last twelve hours of life the abdomen was much distended by tympanites. A hasty autopsy disclosed the bladder empty and contracted, its fundus much inflamed. The hernial bulging of its upper and posterior portions were filled with small intestine. The kidneys macroscopically were not diseased; intestines and stomach distended with gas; the gall bladder enlarged and full of blackish bile; no evidence of any peritoneal infection.

Current Literature.

INTERNAL MEDICINE,

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

OBSERVATIONS BEARING ON THE INFLUENCE WHICH IS EXERTED BY THE AGGLUTININS IN THE INFECTED ORGANISM.

WRIGHT and LAMB, *Lancet*, 1899, Vol. II, page 1727.

THE authors of this article contribute the results of a series of interesting experiments made to determine whether the distribution of the bacteria in the body in typhoid fever and Malta fever stands in any relationship to the distribution of the agglutinins in the same diseases.

The method employed in the first set of experiments was as follows: The amount of agglutinating substance was determined in the spleen and in the heart's blood by extracting a certain weight of each with a definite quantity of saline solution, and testing its agglutinating power in different dilutions.

In three fatal cases of typhoid fever, in all of which pure cultures of the bacillus typhosus were obtained from the spleen, it was shown that there was a marked difference in the quantity of the agglutinins in the spleen and in the heart. For instance, in Case 2, the serum of the heart blood gave a complete reaction at a dilution of 1 to 150, while the serum of the spleen gave only a trace of a reaction in a dilution of 1 to 20, and at a dilution of 1 to 100 the reaction was absolutely *nil*. Practically the same results were obtained in the other two cases studied, and in two cases of Malta fever, in which the "micrococcus melitensis" was obtained in large quantities from the spleen and in very small quantities from the heart blood, the same difference in the quantity of agglutinins was noted, but even in a more marked degree.

These observations seem to establish beyond doubt that in typhoid and Malta fevers the spleen is very much poorer in agglutinating substances than the heart blood, thus, so far as typhoid fever is concerned, simply confirming the results obtained by Courmont.

In three cases experiments were carried on to determine whether any difference existed in the quantity of agglutinins present in the serum of the circulating blood and in the serum from the rose-spots (in which various observers have found the typhoid bacillus).

The same difference was noted in the case of the spleen, although not in quite so marked a degree. In one case, in which the serum of the heart's blood was compared with the serum from

a Peyer's patch, quite as marked a difference was noted in the quantities of agglutinin present as between the heart blood and the spleen.

Remembering these observations, what is the probable sequence of events in the body when the bacteria of typhoid or Malta fevers are introduced into the body?

At the very outset "we may assume that in a person who has not been previously immunized the agglutinins, if they are present at all, will be present in very small quantities. Consequently we may assume that some, at least, of the invading bacteria will pass through the blood stream quite unharmed. These will, in conformity with the general law which obtains when bacteria are introduced into the body, be deposited in the spleen and other internal organs. Having definitely established a lodgment there, these bacteria will grow out into colonies, and each of these colonies will, as it grows, establish round itself a non-agglutinative envelope. As a result of this, and we have seen that the inference has been confirmed, the spleen will, as a whole, contain less agglutinative substances than the circulating blood. We may further assume that as the fever develops, and the agglutinins and other antibacterial substances are produced in greater quantities, a period will arrive when the agglutinins will be present in the blood in sufficient concentration to permit of their penetrating and abolishing the non-agglutinative envelopes which surround individual colonies. This done, the production of toxins will be arrested, and the temperature will fall.

"But if, when this was effected, there happened to remain over somewhere in the organism, shut off, for instance, in a capillary which had become blocked, or in some other part which was not fully permeated by the blood-stream or the lymph-stream, a single bacterial colony, conditions would obviously exist which might afterwards lead on either to a relapse or to a secondary local inflammatory process, for the bacteria, sheltered as they would be in the interior of such a non-bacteriotropic nidus, might go on cultivating themselves there until they had, as occurs before relapses in typhoid and Malta fevers, modified the blood in such a manner as to render it less agglutinative.

"Such is the mental picture or theory of the typhoid and Malta fever process, which is suggested to us by our observations."

ADAMI: ON THE ETIOLOGY AND SYMPTOMATOLOGY OF GOITRE.

Montreal Medical Journal, 1900, Vol. XXIX, page 1.

Adami, after stating how little is known about the etiology and pathology of goitre or bronchocele, and how difficult it is to differentiate the various forms of disease associated with different anatomical lesions, and so establish a useful classification, discusses

the usual theories of the etiology and symptomatology of the disease in the light of his own investigations upon the subject.

As to the cause of goitre, it would be quite impossible even to mention the different theories that have been evolved—carrying loads on the head, living in mountainous districts, etc.—bearing no definite relation to the etiology of the condition.

There is more to be said about the geological explanation of goitre. It seems to be limited in the main to Silurian and Devonian formations, as Bireler has pointed out to be the case in Switzerland, Johanessen in Norway, and Berry in England, and Adami points out that in Canada the main goitre districts conform to the Silurian and Devonian deposits.

Kocher, however, has brought forward evidence that Bireler's theory that goitre only occurs where there are deposits, more especially marine deposits of the Paleozoic age, is not wholly correct.

"That the water habitually drunk has to do with the development of goitre is generally accepted, but *what* it has to do is still a matter of very considerable, nay absolute, doubt." The Swiss have called attention to the existence of definite goitre wells, and many examples are given of an undoubted relationship existing between the water supply and the prevalence of goitre. Bireler gives an especially striking example of this in the village of Aron, Switzerland, where the percentage of cases of goitre amongst the school children of the village diminished from 58 per cent. to 11 per cent. in a few years after the introduction of water from a goitre-free region.

As to what especial substance in the water is the cause of the disease, so far no conclusion can be reached.

Chalk, magnesia, iodine, have all been suggested as the provocative substance in the water, but the chain of proof is sadly deficient, as numerous goitre wells are entirely free from any of these constituents, while many wells containing these substances are found in absolutely goitre-free districts.

In fact, every chemical substance to which the disease has been attributed has been found, by further study, to bear no relationship to the disease.

As to the possible existence in the water of living micro-organisms which may cause the disease, numerous interesting and suggestive observations have been made.

Several cases of the sudden development of the condition in an epidemic form have been reported in the case of troops, large bodies of men, etc.; in fact, Virchow, von Humboldt, and Hirsch all believed in the miasmatic nature of the disease.

Lustig's and Carle's experiments upon horses and dogs are of especial interest in this connection. These observers selected animals from a goitre-free region, kept them in another goitre-free region, and gave them exclusively water from a "goitre-well" to drink. The horse and one of the thirteen dogs given this water

showed definite enlargement of the thyroid after several weeks, while of the ten dogs that were given filtered and boiled "goitre-well" water, all remained free from the condition.

As to what this possible micro-organism may be, the views are very different, Lustig and Carle indicating a special bacillus, Klebs certain infusoria, Bireler a diatom, while Waters suggested that certain ameboe might be the cause; that is, "this bacterial or miasmatic theory is still a theory without any positive fact whereby to establish it." The most that we can say is that there is obviously some relationship between the water drunk and the development of the disease, and that a microbic causation is well within the bounds of possibility.

As to the symptomatology of the disease, Adami, after discussing the symptoms distinctly due to pressure upon the trachea, esophagus, arteries and veins of the neck, the inferior laryngeal, vagus, posterior auricular, sympathetic, accessorius, and facial nerves, and the cervical and brachial plexuses, pays especial attention to the psychical disturbances, the mental dullness and torpor met with in myxedema, and the evidences of mental irritation as seen in exophthalmic goitre.

After calling attention to the fact that "whereas sporadic cretinism is in general associated with atrophy and absence of the thyroid, where cretinism is endemic over 50 per cent. of the cretins are goitrous, and cretinism is infantile myxedema," he emphasizes the fact that "the sharp limitation which is usually held to obtain between ordinary and exophthalmic goitre is often non-existent, and that the one condition is not infrequently accompanied to a greater or less extent by symptoms of the other." As Mobius has already pointed out, he reviews the anatomical findings of himself and others in the different conditions, stretching in an almost unbroken line from simple goitre, without symptoms, to exophthalmic goitre, with its distinct symptom complex, and from this study he arrives at the following conclusions:

"A long series of forms can be made out from, on the one hand, those showing well-marked goitres, with dulling of the intellect and bodily habits approaching to the myxedematous type, through goitres presenting no generalized disturbance, save occasionally such as may be attributed merely to pressure upon the surrounding organs, to other forms of ordinary goitre showing symptoms of the same order as those seen in exophthalmic goitre, to cases of true exophthalmic goitre, and, finally, to cases showing no enlargement of the thyroid, but certain of the general symptoms which are peculiar to Graves' disease."

Thus briefly "we recognize the possible development of the following series of conditions:

"1. Disturbance of the thyroid so extensive as to lead to atrophy of the gland tissue, with the complete symptoms of *cretinism* (when occurring in the young), and of *myxedema* (in the adult).

"2. Disturbances insufficient to cause destruction of the gland

tissue, but leading to arrest of the discharge of the specific secretion from the follicles, and heaping up of the same throughout the whole organism; *generalized colloid goitre, with myxedematous or cretinoid symptoms.*

"3. Localized disturbance of the above nature, the remaining portions of the gland continuing to perform their functions normally; *nodular goitre, with absence of general symptoms, but with possible symptoms due to pressure of the enlarged portion of the gland upon the surrounding organs.*

"4. Localized disturbance leading to the heaping up and retention of colloid material in certain lobules of the thyroid, but with, in addition, the occasional occurrence of nervous stimulation or altered vascularity of the gland, whereby increased absorption or discharge of the retained material into the circulation is favored; *ordinary nodular goitre,* with paroxysmal dyspnea, paroxysmal tachycardia, and other transient symptoms of hyperthyroidism, or of Graves' disease.

"5. Supervention of increased discharge of thyroid secretion into the economy in a gland which is already the seat of ordinary retention goitre; *secondary Graves' disease,* that is, persistent tachycardia and other classical symptoms of Graves' disease following upon an ordinary goitre.

"6. Increased activity of the thyroid gland, with hyperplasia and enlargement of the gland; *primary Graves' disease,* with accompanying enlargement, without retention and exophthalmos.

"7. Relative or absolute increased activity of the thyroid gland, without at first any recognizable enlargement of the organ; *formes frustes of Graves' disease.*"

Diphtheria of the Conjunctiva.—Sydney Stephenson (*Lancet,* February 17) believes that ophthalmia associated with Klebs-Loeffler bacillus is far from rare in London. His own experience agrees with that of C. G. Burton (*Lancet,* January 28, 1899), who found that 2 per cent. of all cases of ophthalmia were due to that organism. This disease may present all grades of intensity, and cannot be recognized in its milder forms without bacteriological examination. He divides the cases into three groups—(1) Interstitial cases, (2) superficial membranous cases, (3) catarrhal cases. His practice, if diphtheria is suspected, is to inject antitoxin at once, without awaiting the results of culture. The child is sent home, but if the diphtheria bacillus is found the child is detained in the diphtheria ward until cured. The local treatment consists of a daily application of 15 per cent. solution of permanganate of potash, and washing the mucous membrane at short intervals with 1 to 5000 corrosive sublimate solution.

RECENT WORK IN SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

X-RAY DIAGNOSIS OF BILIARY AND RENAL CALCULI.

Until recently the use of the radiograph has been considered unsatisfactory in cases of renal calculi, and useless in detecting gall stones. Of late, however, considerable improvements in technique have been made.

Leonard, in the *Philadelphia Medical Journal* of January 6, 1900, and the *Annals of Surgery*, February, 1900, has discussed the subject of renal calculi very exhaustively. He has shown that the principal difficulty encountered is that the calculi are very little more opaque than the tissues of the abdomen, and consequently do not show in the negative taken. Leonard's method "is founded on the axiom that if rays are employed that will differentiate between the shadows of the tissues that are less dense than the least dense calculus all calculi will be found. Thus, in examining for calculi we do not want rays that will penetrate all tissue, but a differentiation in shadows that will demonstrate without doubt that all calculi, no matter what their relative density, will cast shadows if present in the field of examination. Such differentiation makes the negative diagnosis absolute. The result sought for in examining for renal calculi is to obtain negatives in which shadows are shown of the tissues less opaque than the least opaque calculi."

Experience has demonstrated the fact that this tissue differentiation can be obtained by employing a large volume of Röntgen discharge from a tube of low vacuum, or soft tube, as it is called. For this purpose a self-regulating tube is the most satisfactory. Using these methods, Leonard has succeeded in detecting calculi in the kidney and ureter twelve times out of fifty-nine cases in which the symptoms were either very marked, or uncertain, or where a negative diagnosis needed confirmation. In eight of the twelve cases so diagnosticated the presence of calculi was confirmed by operation. Seven cases in which a negative diagnosis had been made were subsequently operated upon, and no stone was found, with the exception of one case where the error was due to faulty technique. Of particular interest is the fact that Leonard has succeeded three times in locating small calculi in the lower end of the ureter, there being only one other case on record where this has been done. A careful review of the literature shows that renal or ureteral calculi have been successfully located by the *x*-ray in thirty-six cases by many different observers, so that the possibility of detecting such calculi by this means may be considered to be established, and thus a very important diagnostic aid given to surgery. The absolute localization of the calculi and the precise knowledge of the number of calculi materially facilitates and sim-

plifies operative procedure and precludes incomplete operation. The absolute negative diagnosis renders non-operative treatment rational, when its omission might otherwise endanger the functional activity of either or both kidneys, or even the patient's life.

Leonard thinks that the positive and negative diagnosis are rendered absolute by the present technique, but that the operator must be able to show in his negative differentiation shadows of the less dense tissues in the lumbar and pelvic regions, and that one perfect negative, showing such detail, is sufficient evidence on which to pass a negative diagnosis.

GALL STONES.

Beck, in the *New York Medical Journal*, January 20, 1900, reports two cases which he claims are the first and only successful demonstrations of biliary calculi by the *x*-ray. The description of the first case is so meager that no accurate idea can be given of what was found. The second, however, which is accompanied by a very good skiagraph, shows beautifully two large calculi in the gall bladder, one in the cystic duct, and three in the liver.

The exact technique by which these photographs were obtained connot be given from the text of the article. It seems a great pity that in describing such an important procedure a more intelligible report has not been made. It would seem that Beck has come to the conclusion that a short exposure, with a "quick penetrating focus tube," is necessary for successful results. The patient should lie upon his abdomen, a pillow beneath the symphysis, and another beneath the clavicles, and the right arm elevated, so as to elevate the chest and liver. The plate is placed beneath the abdomen, and the contour of the liver should be outlined with thin wire attached to the plate to aid in subsequent identification. The tube should be stationed over the ribs on the right side, so that the rays, passing through the liver, strike the plate at an angle of about 45 degrees, thus having to pass through less liver tissue than if the tube is placed vertically over the patient. Several negatives, varying in length of exposure from five to ten minutes, should be taken. It is generally found that shorter exposures give better depiction of the calculi.

It is interesting to note that these successful negatives have been obtained by a method distinctly opposite to that of Leonard for renal calculi, and it would be interesting to see whether the low vacuum tubes employed for a longer interval, which are so effective in showing the latter, will not be more successful in revealing biliary calculi.

MAJOR OPERATIONS UNDER LOCAL ANESTHESIA.

Of late years there has been a constantly increasing tendency to perform more and more operations under local instead of general anesthesia. This has been especially true in Germany, where operations of all grades have been thus performed with surprising

facility, the recent great advances made in this line being principally due to Schleich's demonstration of the anesthetic properties of very weak cocaine solutions.

Of special interest in this connection is a recent report of Cushing, in the *Annals of Surgery*, January, 1900, upon the use of local anesthesia in hernia operations. After demonstrating the possibility of performing these operations under local anesthesia, Cushing has made a careful study of the nerves of the inguino-scrotal region, and has shown that by locating the principal nerves, and injecting cocaine into their sheaths, the operation is greatly simplified and rendered practically painless.

Cushing's work is especially interesting in that he has been able to correct certain fallacies in regard to the nervous supply of this region, having shown that the ilio-inguinal and genito-crural nerves do not supply the cuticle of the dorsum of penis and scrotum, as stated by Gray, Quain, and others, but that these regions are supplied by the sacral nerves, which also supply the vermicular movements of the dartos. The steps of the operation done under cocaine are as follows:

The skin is infiltrated with Schleich's solution for the usual high incision. It has been found that the fat of the upper angle of the wound contains practically no nerves, and that the incision may be carried without pain through this to the aponeurosis, which is then opened in a line with the inguinal canal. The ilio-hypogastric nerve will then be seen running above and parallel with the border of the internal oblique, and is cocainized. The ilio-inguinal is found running down the canal in the same sheath with the genito-crural. After injections of cocaine into these two nerves, the rest of the operation can be, as a rule, painlessly performed.

Cushing urges that special care be taken not to divide the nerve-supply of the cord, thus avoiding paralysis of the cremaster muscle and the resultant sagging of the scrotal contents. In dividing the vein in varicocele operations, it is also important to avoid cutting the scrotal nerves. There are manifest advantages of local anesthesia in these operations. The unpleasant or dangerous post-etherization sequelae (lung and kidney complications) are avoided. There is no vomiting or wrenching to put strain upon the recent sutures. Urinary disturbances are less apt to occur, and the diet continues as before. The disadvantages are trivial, the principal objection being the increased length of time consumed in the operation, and the slight suffering of the patient.

While advocating it primarily for patients of advanced years, or in poor condition to stand general anesthesia, Cushing has found local anesthesia so effective and satisfactory that he has frequently used it in ordinary cases, often at the request of patients themselves.

THE PHYSIOLOGICAL EFFECTS OF GASTRO-ENTEROSTOMY.

S. Rosenberg, in *Pflüger's Archiv.*, Bd., LXXIII, p. 403; *Centralbl. f. In. Med.*, 1900, No. 31, details results from experiments performed upon dogs to determine the effect of gastro-enterostomy.

A transverse incision was made between the stomach and duodenum, and the openings closed with sutures; then a gastro-enterostomy was performed between the duodenum, or the upper jejunum, and the stomach. Thirty dogs operated upon by this method were experimented upon in regard to the absorption of albumen, fat, and carbohydrates.

A dog in normal condition absorbs from 94 to 97 per cent. of nitrogenous food, 94 to 98 per cent. fats, and 97 to 99 per cent. of carbohydrates.

Animals operated upon made use of 86 to 95 per cent. of the nitrogenous, 87 to 97 per cent. of the fat, and 95 to 98 per cent. of the carbohydrates.

Rosenberg thinks that the diminished assimilation comes from the fact that the acid contents of the stomach pass into the intestine without the neutralization usually produced by the ingesta, and that on this account the secretion of the pancreas is disturbed.

An interesting fact is that the tendency to vomiting is increased. This is supposed to be due to the fact that during reversed peristalsis the intestinal contents can more easily pass back into the stomach, and, acting as an irritant, cause vomiting.

These experiments, showing how little digestive disturbance is caused by food passing almost directly into the intestine, are in line with the results of Schlatter's celebrated case of total extirpation of the stomach.

DAMAGES FOR A DELAYED MESSAGE.—A man, attacked in the evening with right oblique inguinal hernia, had a telegram sent at about 11 o'clock to a doctor about eleven miles distant, which was not delivered until about 7 o'clock the next morning, although the doctor lived within four blocks of the telegraph office, was known to the operator, had telephone communications with his office, and was within the free-delivery limits of the city. Besides, it was shown that the doctor was at home, had no professional engagements, was ready to meet the call, had it been presented, and did, on receipt of the message the following morning, go to attend the case. The message, in addition to summoning the doctor, advised him that it was a case of rupture. The telegraph company admitted its negligence, but insisted that the sufferer was entitled to but twenty-five cents damages, the amount paid for transmitting the message. There was a jury trial, and a verdict for $1400. Now the Court of Appeals of Kansas affirms the judgment of the lower court.—*Journal A. M. A.*

RECENT LITERATURE ON OBSTETRICS AND GYNECOLOGY.

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Operative Fixation of the Displaced Uterus, and the Complications of Pregnancy and Labor Resulting therefrom. *Ludwig Kleinwächter, Czernowitz; Wiener Klinik,* Nos. 2 and 3.

In a most carefully-prepared monograph the author considers the entire subject of the operative treatment of uterine displacement, and the complications of pregnancy and labor resulting from such operations. The literature list is most complete. In all he has collected the reports of 391 observers, and in a careful analysis of their methods and results publishes a work the value of which cannot be overestimated.

He considers the subject under four main divisions:

I. Operative Fixation of the Retroflexed Uterus.
II. Operative Fixation of the Prolapsed Uterus.
III. Operative Fixation of the Anteflexed Uterus.
IV. The Obstacles to Labor resulting from the above operations.

I. Operative Fixation of the Retroflexed Uterus.

The operations for relief of retroflexion can be divided into two main classes, the first being that in which the displacement is corrected by shortening the natural ligamentary supports of the uterus, and the second in which the uterus is fixed to some of the organs lying anterior to it.

1. THE ALEXANDER-ADAMS OPERATION.

The oldest, and possibly the most frequently-done operation, is that of shortening the round ligament—the so-called Alexander-Adams operation. According to Tillaux, this operation was first done for the relief of retroflexion by Aran, and for prolapsus by Alguie, but was thoroughly worked out and described by both Alexander and Adams, hence the name. In brief, the operation is as follows: An incision 5 cm. long is made parallel to Poupart's ligament and the external inguinal ring laid bare. The genital branch of the genito-crural nerve is now found and either cut or put to one side, in order to prevent pain in the resulting cicatrix. The round ligament is then dissected out and caught by a pair of forceps. This same procedure is repeated on the opposite side and the other round ligament isolated in a like manner. The uterus having been lifted to its normal position by an assistant, the round ligaments are shortened by about 8 to 10 cm., and the cut ends sewed firmly into the wound. For the sake of safety the patient should wear a pessary for the first week after operation.

There are many modifications of this operation. Thus, Cassati makes a single curved incision between the two inguinal rings, then isolates the ligaments, sews them together and to the subcutaneous tissue. Lapthorn Smith makes two incisions, passes the ligament on the right side under the central bridge of tissue, makes it fast in the wound of the opposite side, and vice versa. In practically the same way does Gelpke, except that he passes the ligament between the skin and abdominal muscle, and reinforces it by suture to one column of the ring on either side. Martin, after isolating both ligaments, passes the left under the skin to the right wound, where he ties the two together in a firm knot.

The intraperitoneal method of shortening the ligaments is used by many with apparently good results. The first to shorten the round ligaments by abdominal section was Polk, who takes a fold of each ligament (the fold being toward the median line), and makes these folds lie just over the bladder. Gill Wylie operates in practically the same way, except that he directs the folds away from the median line. A. Palmer Dudley operates by making three denuded oval surfaces, one on the anterior surface of the uterus, and one on the anterior surface of each broad ligament. By passing the suture in the proper direction, he brings these three raw surfaces together, so that at the end of the operation the round ligaments are brought together in the median line at their middle thirds. The round ligaments have also been shortened by opening the anterior vaginal fornix and drawing the ligaments into the vagina, where the necessary fold is made and sewn together. The wound in the vagina can then be closed. Other methods and modifications are mentioned; for example, Wertheim and Mandel reinforce the action of the shortened round ligaments by also shortening the utero-sacral ligaments; thus, while the fundus of the uterus is drawn forwards, the cervix is at the same time drawn backwards.

The advantages of the typical Alexander-Adams operation mentioned by Kleinwächter are, in the first place, the patient is not subjected to an abdominal section. The incision is a small one, and if made properly will be hidden by the pubic hair. It is not necessary to enter the vagina; thus it is a suitable operation for virgins. On the other hand, its disadvantages are that it is not applicable where the uterus is bound down to the rectum by inflammatory processes, and that the tendency toward the production of inguinal hernia is undoubtedly increased.

2. FIXATION OF THE UTERUS TO SOME ANTERIOR ORGANS.

(a) Fixation of the uterus to the *abdominal wall. Ventro-fixation or gastrohysteropexie.*

The first ventro-fixation was done by Koberle in 1869, who, in operating on a case of chronic intestinal obstruction, with retroflexion, brought the uterus forward and stitched it to the abdominal wall. Marion Sims operated in a similar manner in 1875. Lawson Tait operated on two cases in 1880, and both patients re-

covered. We owe the present status of the operation to Olshausen, who reported his first three cases in 1886, shortly after which came H. A. Kelly, and two years later Czerny and Leopold. Olshausen operated in the following way: After opening the peritoneum, the uterus is freed from its adhesions. Taking care to avoid the internal epigastric artery, the uterus is fixed to the abdominal wall by two or three sutures at each cornu. The sutures were passed at the uterine cornu, near the insertion of the round ligaments, and included portions of the uterine as well as the abdominal muscle. Silk or silkworm gut was the suture material used. The operation is done in the Trendelenburg position, and in women who do not expect to conceive a portion of the uterine end of the tube is included in the suture. Czerny and Leopold applied only one set of sutures through the fundus in the median line, the former including in his suture only fascia and peritoneum, while Leopold passes the sutures through the entire thickness of the abdominal wall. This operator usually scrapes the epithelium from the surface of the uterus at that point which will come in contact with the abdominal wall, to insure perfect adhesion. H. A. Kelly first operated by suspending the uterus by a portion of the broad ligament to the adbdominal wound, later by the method of Olshausen, and at present puts two sutures through the posterior wall of the uterus, just below the fundus.

Like the Alexander-Adams operation, ventro-fixation has many modifications. In order to avoid opening the peritoneal cavity, Kattenbach and others make their incision down through the peritoneum; the uterus is then brought into anteposition and the sutures passed through the peritoneum and uterine wall. This method, however, is not without its dangers, *e. g.*, that of catching a portion of the intestine in the suture. Stober, Asaky and Kelly operated by passing the suture from within the uterus in the following manner: After curetting the uterus and putting the patient in the Trendelenburg position, a needle, guarded by a properly-constructed tube, is passed through the cervix to the fundus, which is brought into apposition with the anterior abdominal wall. The needle is then pushed through and the sutures tied. Förster modifies this by opening the posterior cul-de-sac and passing the finger behind the uterus as a guide upon which he passes the needle. In this way he avoids injuring the intestine.

In two cases reported by Jacobs and Lindfors, a loop of intestine slipped between the fixed point of the uterus and bladder, thus forming an ileus. Jacob's patient died, and the one of Lindfors was saved by laparotomy. In order to avoid these complications, Wertheim advises that a fold of peritoneum from the fundus of the bladder be stitched along the entire median line of the uterus, and the fundus be fixed to the abdominal wall after the method of Olshausen. He reports thirty-four cases operated on in this manner with good results. Certain operators advise that, as well as in ventro-fixation, the operation be strengthened by shortening the round ligaments, and others have suggested that the retroflexion

be transformed to anteflexion by shortening the anterior wall of the uterus. Döderlein, Eliescher, and Preiss operate along these lines, the principle of their operation being the opening of the anterior fornix, freeing the bladder, denuding a portion of the anterior uterine wall, and bringing the edges of this denuded surface together. Jonnesco goes in through the abdomen, and after freeing any adhesions which may be present, resects a portion of the anterior uterine wall in a similar manner to that cited above. Chaput also considers that in this method of operating we have a much more certain procedure than either ventro-fixation or the Alexander-Adams operation. An original idea is that of Swiecicki, who produces an adhesive inflammation between the uterus and bladder by opening the anterior fornix and inserting a gauze tampon which has been soaked in alcohol.

In summarizing the results of the operation, the author says that the advantages of ventro-fixation of the uterus (particularly by the intraabdominal method) are, that one always has a perfect view of the entire field of operation, and can either free adhesions between the uterus and neighboring organs, or, in the case of disease of the appendages, remove whatever strictures may be necessary. Hemorrhage, if it occurs, can be absolutely under control of the operator, and when the operation is properly done there is absolutely no doubt that the displacement of the uterus has been rectified. On the other hand, the disadvantages are that it is always an intraperitoneal operation. Women who have to do heavy work in many cases experience pain at the site of operation, and in fixing the uterus to the anterior abdominal wall one interferes to a certain extent with the normal relation of the contiguous organs.

A few cases of ventro-fixation of the pregnant uterus have been reported, but the results have not been such as to justify it.

(b) Fixation of the uterus to the *vagina*. *Vagino-fixation.*

This procedure was first suggested by Sänger in 1888, but, according to his method, one operated to a great extent in the dark, the unguided needle being simply passed through the anterior vaginal wall into the fundus uteri. The danger of wounding the bladder was pointed out by Schückling, who advised that sutures be passed from the uterine cavity into the vagina by carrying the needle through the cervix by means of a properly-constructed tube, when the needle could be pushed through the fundus into the vagina and the sutures tied.

It remained for Dührssen and Mackenrodt to perfect the operation. Dührssen operated as follows: The cervix was drawn to the outlet and a transverse incision made in the anterior vaginal fornix, similar to that in vaginal hysterectomy; the adhesions between bladder and uterus were then separated until the vesico-uterine peritoneal fold was reached. With a sound in the uterus, the fundus was brought forward and a provisional suture passed through the peritoneum into the fundus, by means of which the uterus could be temporarily held in anteposition. Three silk sutures were then inserted through the peritoneum into the fundus;

these being tied, the provisional suture was removed and the wound in the vagina closed with catgut. It is thus seen that the operation was done without opening the vesico-uterine fold of peritoneum.

The operation under the hands of Dührssen has undergone the following modifications: (1) Operating without opening the plica, as above; (2) operating with opening the plica; (3) operating with opening the plica and bringing together the vesical and vaginal wound edges—so-called intraperitoneal method; (4) the so-called intraperitoneal method, with separate closing of the peritoneal opening; here the peritoneal opening is closed separately, and not included in the vaginal suture. The operation of Mackenrodt differs slightly from that of Duhrssenn in the direction of the primary incision and minor technicalities.

Other operators have modified the Dührssen-Mackenrodt operation in various ways, but their modifications are unimportant. Some have reinforced vagino-fixation of the uterus by supplementing the action of the anterior fixation of the fundus by retro-fixation of the cervix.

In vagino-fixation, says Kleinwächter, one approaches more nearly the normal position of the uterus and its relation to the surrounding organs than with ventro-fixation. This operation has, however, certain disadvantages, the main one being that the operator in many cases is working in the dark, and even when operating by the open method the procedure may be attended with many obstacles. Certain accidents have been reported, among which he mentions perforation of the intestine, with fistulae remaining [Wertheim]; Jacobs perforated the bladder in dissecting it from its uterine adhesions, Philippi twice injured the ureters, and Frederieg, in operating upon a case, produced such hemorrhage that it was necessary to extirpate the uterus in order to save the patient.

(c) Fixation of the uterus to the *bladder. Vesico-fixation.*

Feeling that vagino-fixation of the uterus was not without its dangers, and on account of the severe obstacles to labor that resulted from it, Mackenrodt suggested that the uterus be fixed to the serous coat of the posterior wall of the bladder, and hoped thereby to obtain a sero-serosal fixation, which would maintain the uterus in its anteposition, and, at the same time, not interfere with its action during pregnancy and labor. Mackenrodt, however, was not the first to do this operation, for it had been done as early as 1884 by Kelly and Wertheim, who, while operating for other causes, thought it well to stitch the retroflexed uterus to the serous coat of the bladder. The first operator with a definite idea of fixing the uterus to the bladder was Pryor of New York, who, in 1893, operated in the Trendelenburg position, denuding corresponding surfaces of the uterus and bladder, and brought these surfaces together with sutures. The result in his case was good.

To Mackenrodt, however, belongs the credit for having developed the operation. In his latest method he lays particular stress upon the importance of obliterating the vesico-uterine space, and

claims that the adhesions thus formed between the uterus and bladder prevent backward displacements of the former. This operation can be done either by abdominal or vaginal route, the former being indicated when the patient is a virgin, or there is reason to believe that there is coexisting disease of the adnexa or adhesions between the uterus and rectum. The results of this procedure Mackenrodt claims to be good.

This operation, like the others, has received various modifications in the hands of different operators, the principle, however, remaining the same. Vesico-fixation is, as yet, too young to give definite conclusions as to its true value, and we will have to wait for more cases before the influence upon labor and pregnancy can be thoroughly understood. The anatomical relations obtained by it are by no means as perfect as in vagino-fixation, and the proximity of the bladder may in certain cases interfere with the functions of that organ.

II. OPERATIVE FIXATION OF THE UTERUS IN PROLAPSUS.

1. *The Alexander Operation.*—Various modifications of the Alexander operation have been done for the relief of prolapsus, but this operation alone is usually not sufficient to give permanent results. For this reason most operators reinforce it with a more or less extensive resection of the vaginal outlet, thus giving the uterus a support from below. All of the particular modifications of the Alexander operation, as stated under retroflexion, have been done for prolapsus, and there is little need of repetition.

2. *Anterior Fixation of the Uterus.*—Just as in the case of retrodisplacements, the author here considers the three methods of anterior fixation of the uterus—ventro-fixation, vagino-fixation, and vesico-fixation.

(a) Ventro-fixation gives good and lasting results in prolapsus, if one strengthens the operation by means of a resection of the outlet. This operation was first done by P. Müller. The various modifications are as follows: Kiriac combines ventro-fixation with fixation of the bladder, and catches the anterior bladder wall in the abdominal wound. Freund strengthens the ventro-fixation by fixing the posterior portion of the cervix uteri in the pouch of Douglas; and, analogous to the operation by Swiecciki, Inglis Parson, using a solution of quinine, produces an adhesive inflammation between the uterus and contiguous organs.

(b) Of ventro-fixation in prolapsus, Kleinwächter says but little. The operation has been done by Mackenrodt, and Flaischlen advises that it be a method of procedure in old women.

(c) Vesico-fixation, Mackenrodt claims, is also effective in prolapsus. Fehling and Dührssen have also operated for prolapsus by this method, but always strengthen their efforts by operating to decrease the caliber of the vagina.

Of the newer operations for relief of prolapsus, Kleinwächter mentions that of P. Müller, who does a supra-vaginal amputation and stitches the cervical stump in the abdominal wall. Other op-

erators have modified this method in various ways. Abrajanoff treats prolapsus by making extensive denudation of the vagina, thus producing an artificial vaginal stenosis, and claims good results therefrom.

The principal point brought out in the consideration of operative treatment of prolapsus is that one is rarely able to obtain results unless the fixation operation be reinforced by some other gynecological procedure, and only in the mildest cases is a typical fixation sufficient to obtain the desired result.

III. Operative Fixation of the Uterus in Anteflexion.

In speaking of anteflexion of the uterus, Kleinwächter agrees with Kustner (in Veit's "Handbuch") that the occurrence of a pathological anteflexion of the uterus is very rare. This mistake was made in former times before operators were familiar with the normal position of the uterus. On account of the anatomical relation of the uterus in anteflexion, it is obvious that neither vagino- or vesico-fixation are suitable operations. Ventro-fixation of the anteflexed uterus has been done by Condamin and Laroyenne, with relief of the existing dysmennorhea, and good result. Reed does an antevaginal fixation of the cervix by denuding an area on the anterior vaginal wall, bringing the cervix forward, and thus drawing the fundus backwards. Mention is made of the operation of Dudley and its modification by Keith, the principle of which is the splitting of the posterior lip of the cervix.

IV. Obstacles to Labor Resulting from Operative Fixation of the Uterus.

By antefixation of the uterus the anatomical relations are so changed that the effect upon labor and pregnancy may vary in any degree from the slightest and scarcely noticeable complications to the most severe type of dystocia, in which both mother and child are put in the greatest possible danger, or labor may be absolutely impossible.

The author refers to the development of the uterus in normal pregnancy, and lays special stress upon the fact that at term the axis of the uterus (*i. e.*, from fundus to the cervix), the axis of the contained fetus, and the axis of the pelvic inlet practically coincide. In pregnancy after fixation of the uterus the key to all the difficulty lies in the fact that for one reason or another these axes lie in different directions, and cross one another at an angle of greater or less magnitude. When the uterus, which has been fixed to one of the organs anterior to it, becomes pregnant, the normal growth is hindered and the fundus is held down at the point of fixation. Development goes on, and the superior wall (posterior) has to hypertrophy and stretch in order to contain the growing fetus. Thus at term the uterus will lie with its axis almost at right angles with the axis of the superior strait, and the fundus will be found at a much lower level than in a normal pregnancy. It is easy to see that the effect of this growth upon the cervix will be to draw it very

much upward and displace it backward, so that it will occupy a position more or less in close proximity to the promontory of the sacrum. Now, the fetus may lie in one of two position—either with its long axis (from breach to occiput) in coincidence with the axis of the uterus, when the anatomical relations will be very much as described, or with its long axis practically at right angles to the uterine axis, when, with the fundus lying at a higher level, the cervix is still in relation with the promontory; the presenting part of the child lies in a dilated cul-de-sac formed by the thinned anterior uterine wall between the cervix and fixation point. It can be easily seen that uterine contraction would have the effect of bringing the presenting part of the child against the promontory in the first instance, while in the second the child lies practically in a transverse presentation, and contraction would force the lateral plane of the fetus in the direction of the cervix, viz., against the promontory of the sacrum.

One finds upon examination in the first case a pendulous abdomen, with the fundus lying lower than usual; by vaginal examination the head is lying against the promontory, the cervix is higher, farther back, and may be difficult to reach. In the second case, externally, the uterus is very much as if its long axis occupied the axis of the inlet, and the fundus is not so low; internally, the first impression is that the presenting part is well engaged in the pelvis, but the cervix is nowhere to be found, for the reason that the pelvic inlet is filled up with the dilated cul-de-sac of the anterior wall, and the cervix is high up, almost out of reach, in close relationship with the promontory.

The relations above cited are what occur in the more severe forms of dystocia. Any transition between them and normal can be noticed, the severity of symptoms increasing according as the fixation point is near the fundus of the uterus.

The severity of the dystocia depends also upon the method by which the uterus is fixed. Smith and Strassmann have divided the adhesions into three groups—(1) the serosa-serosal, in which serous-surface is brought in contact with serous-surface, as in the case of ventro-fixation; this form of adhesion gives the least trouble in pregnancy, but is also least likely to retain the uterus in position; (2) the sero-fibrosal adhesion, in which serous-surface is brought in contact with connective tissue, and (3) fibro-fibrosal adhesion, in which two denuded surfaces are directly brought together. This, as is obvious, is the firmest adhesion and the one liable to give the most difficulty in labor.

1. *Pregnancy and Labor After Alexander-Adams Operation.*—With the typical Alexander-Adams operation, the uterus, not being fixed, is not hindered in its development as in the case of other operative procedures. Thus, as would be expected, the results as to pregnancy and labor are better. Some operators take the largely theoretical stand that pregnancy is uninfluenced or very slightly so by this operation. In practice, however, it is otherwise.

Thus Revierre and Grusdeff have reported cases in which the patient experienced pain at the site of operation, and Dorland has three instances in which there was severe vomiting and emaciation. Kleinwächter has collected from various reports 112 pregnancies after the Alexander-Adams operation. Of this series, eleven, or 9.82 per cent., were delivered before term. In the 101 labors at term, one had abdominal pain. Forceps was used twice, and version once for transverse presentation. In one case there was a record of retained placenta and post-partum hemorrhage. Thus it is seen that after the Alexander-Adams operation, with the exception of the frequency of abortion, the complications are not much increased above what would be expected in normal pregnancy.

2. *Pregnancy and Labor After Ventro-fixation.*—From what has been said it can be seen that the greatest obstruction in ventro-fixation will occur in those cases in which the uterus has been fixed at a comparatively high point upon its fundus to a comparatively low point upon the abdominal wall, or just above the symphysis pubis. So many cases of pregnancy following ventro-fixation have been reported that it is not difficult for one to form a pretty clear idea of the results of this operation. Pain in the abdomen at the site of operation is mentioned by many observers. Demelins puts its frequency at 21 per cent., due, of course, to the traction upon adhesions between the uterus and abdominal wall. Difficulty in urination is also a common symptom, and occurs in 16 per cent. of the cases according to this observer. Excessive vomiting in pregnancy has also been reported. For relief of these conditions Dorland goes so far as to advise that in severe cases laparotomy be done and the adhesions severed. Pregnancy ends in abortion in from 14 to 17 per cent. of all cases. According to Dorland, in 179 cases practically normal pregnancy occurred in 62 per cent.

Concerning the complications of labor, attention has been drawn by Dorland and Lamort to inefficient uterine contraction. Gallet and others have pointed out that the membranes frequently rupture prematurely, and Miländer speaks of prolapse of the umbilical cord. Operative procedures have been resorted to as follows: Miländer, four times in seventy-four cases; Dorland, in 179 cases, used forceps eleven times, and Kleinwächter has collected eighteen other forceps operations from the literature. Demelins puts the frequency of forceps at 9.8 per cent., and says that transverse presentations are quite common, occurring in 3 per cent., thus necessitating version, which occurred, this same author says, in 4.3 per cent. of all cases. In the cases where the obstacle to delivery is very great, that is, those cases where the fundus has been fixed at a low point on the abdominal wall, and, by the development of pregnancy, the cervix has been displaced upwards and backwards, the usual operative measures may be excessively difficult or even impossible. In such cases the performance of a radi-

cal operation is necessary to deliver the child. Kleinwächter has collected eight cases of Cesarean section. Dührssen advises in such cases his so-called vaginal Cesarean section, where the cervix is split in its anterior and posterior wall, and the child delivered by forceps or version, and Rühl has advised a section of the anterior vaginal wall (*Vordere Uterus-Scheidenschnitt*), which, in a later publication (*Centralb. f. Gyn.*, 1899, No. 51), he claims to be far superior to Dührssen's operation.

3. *Pregnancy and Labor After Vagino-fixation.*—In vagino-fixation we have in the main an exaggeration of the relations above cited. The fundus is fixed at a lower point, so, if the method of suture be a sero-fibrosal or fibro-fibrosal one, the fundus being firmly fixed, is hindered in its normal development during pregnancy. The lower position of the fundus, the high position of the cervix, and retro-position of the cervix in the neighborhood of the promontory, are all exaggerated, and it is by no means rare to find on vaginal examination the entire pelvic inlet filled with the thin anterior wall of the uterus between the cervix and fixation point. For this reason complications are more frequent after this form of fixation than in the other operations.

Kleinwächter has collected from the literature 111 cases of pregnancy following vagino-fixation, with the following results: Many cases have experienced great pain in the bladder. Dührssen reports two cases in which the pain was due to suture through the bladder wall, which later became so encrusted as to form stones the size of a walnut. Pain at the seat of operation has also been a very common symptom. In the 111 cases reported premature expulsion of the ovum occurred in twenty-eight cases, or 25.23 per cent., and pregnancy went to term in eighty-three cases, or 74.71 per cent., and of the eighty-three cases which reached term, only 66.47 per cent. ended spontaneously, there being necessity for operative interference in 32.53 per cent. In six cases the obstruction was so great that one of the cutting operations had to be done—Cesarean section, vaginal section of Duhrssenn, and anterior uterine incision of Rühl. Rühl states in a later publication (*Centralb. f. Gynec.*, 1899, No. 51) that the mortality in Cesarean section is very high. In eight cases of Cesarean section collected by him the maternal mortality was 50 per cent., while he has operated upon three cases by his own method without death.

4. *Pregnancy and Labor Following Vesico-fixation.*—The number of pregnancies following vesico-fixation is still too small to allow of any definite conclusions; the only statistics mentioned by Kleinwächter are those of Mackenrodt, who reports twenty-seven cases, of which twenty-two had normal labor, two had abortions, one due to placenta previa, and two were delivered by forceps.

In concluding his monograph the author states that he is of the opinion that only the Alexander-Adams operation and ventro-fixation are justifiable in women who expect to conceive later.

PATHOLOGY AND NEUROLOGY.

Under the Supervision of Robert Reuling, M.D., Baltimore.

A Case of Acute Hemorrhagic Polymyositis. Prof. Jos. Bauer. *Deutsch. Archiv für Klin. Med.*, Bd. 66.

Besides reporting on the clinical course and pathological changes in a case of acute hemorrhagic polymyositis, the author gives a very interesting *résumé* of the literature on the various forms of myositis. The greater portion of this is taken from the admirable work of Lorenz (*Nothnagel's Handbuch*, Bd. 41, III Th., I Abth.). Bauer agrees with this author that one can accept two distinct, clearly-defined diseases of the muscles—the one first described by Unverricht as dermatomyositis, which closely resembles in its clinical course trichinosis, and which is constantly associated with various forms of exanthema; the other being the acute hemorrhagic polymyositis, which differs from the first-named in its clinical course and in the character of the pathological changes in the muscles.

Lorenz has described the main differences in these two conditions about as follows: "In dermatomyositis the onset is marked by prodromal symptoms lasting several days, and these consists in a feeling of marked malaise, rheumatoid pains, stiffness of the joints, and gradually increasing fever. The first objective change is usually edema of the face; then general edema of the extremities sets in, with violent pains in the muscles. A dermatitis appears and spreads gradually over a greater portion of the body. A solid edema, which often causes the extremities to assume monstrous proportions, is very characteristic of this disease. The inflammatory changes in the muscles may spread by involving neighboring groups of muscles, or widely separated regions may be involved. Death may be caused by such changes in the muscles of respiration or those of the larynx and pharynx. The disease may pursue an acute, subacute or chronic course, and cases lasting from one to two years have been described. In the chronic type there are periods of marked improvement, followed by acute exacerbations. In the great majority of cases the disease is fatal.

"The pathological changes are briefly these: The subcutaneous tissue is infiltrated by a solid edema, and saturated by a yellowish serous exudate. The muscles show macroscopical evidence of a pathological change. They are usually of a faint reddish or light yellow color, and may be of a hard, tough consistence or extremely soft, tearing readily when handled. The microscopical picture is that seen in any inflammation of muscle tissue. There is an interstitial cellular infiltration, with degenerative changes in the muscle fibers. The fibers themselves frequently separated by the serous exudates or by masses of polymorphonuclear cells."

The clinical course and pathological changes in polymyositis hemorrhagica are described by Lorenz as follows:

"The disease begins without fever, or, if present, is not high. Pains in the muscles are usually the first symptom, generally first noted in the calves and thighs. Examination may show in these regions well-marked, tumor-like swelling, with edema of the surrounding cellular tissue. These symptoms and the swelling may disappear quite rapidly, only to be followed by reappearance in another region of the body, so that multiple foci are formed. The pains are now severe, and there is some fever. The skin may show greenish-yellow discolorations over the site of these swellings resembling the discoloration seen from a bruise. These are mostly due to the breaking down of the hemorrhagic exudates. Occasionally exanthematous eruptions are also seen. After the edema disappears one can palpate a hard tumor-like mass in the affected muscles, which is tender on pressure."

With but a single exception, all the cases reported have shown cardiac disturbances. Of six cases collected by Lorenz, five ended fatally, all with symptoms of cardiac asthenia. The disease generally lasts several months.

The pathological changes in the muscles can be divided into two stages—an acute stage, in which hemorrhages are seen between the muscle bundles, which cause destruction of the muscle fibers; in the chronic stage one finds areas showing fibrous tissue formation, with remains of blood pigment and advanced atrophy of muscle fibers.

Bauer also calls attention to the myositis frequently associated with joint complications, which occurs in erythema multiforme. This differs considerably from the two forms just described, and, as a rule, pursues a favorable course.

The following is a brief abstract of the history and post-mortem findings in the case reported by Bauer:

The patient was a man, aged thirty-nine, whose family and previous history bore no relation to his illness. He dates the onset of present illness eight weeks previous to his admission to the hospital. He first noticed rather suddenly quite severe pains in the muscles of both thighs and calves. In about two weeks the painful muscles showed considerable swelling. He was obliged to remain in bed, and in a short time a painful swelling appeared on the flexor surface of the right thigh, and on admission to the hospital another similar swelling was noted in the left triceps region. There was moderate fever. The physical examination showed no abnormality about the thoracic or abdominal viscera, except that the spleen was slightly enlarged. The face was congested, but not swollen; pulse 94, temperature 37.8° C. On the left arm, about the insertion of the triceps, a swelling of considerable dimensions was seen, painful and very tender on pressure. About the lower third of both legs a similar swelling was seen, and another on the middle third of the right thigh. The skin shows several large discolored areas, which have a dark brownish color, surrounded by a violet-

colored zone. One of these is seen about the right patella, others on the flexor surface of right elbow and the inner surface of right knee. Later, a marked variation in the pulse-rate occurred, which ranged between 64 and 116. Death occurred very suddenly, and at a time when the patient's general condition seemed fairly good. The autopsy findings will not be reviewed here, but the changes in the muscles corresponded exactly to the description of these changes by Lorenz. The sudden death could be explained in this case by a hemorrhage, which produced a coagulated mass about the size of a walnut in the wall of the left ventricle. The heart muscles showed numerous punctate hemorrhages throughout. A pure growth of the staphylococcus pyogenes was obtained from this case, and Bauer believes these were the causative agents producing the inflammatory changes in the muscles.

* * *

A Case of "Family Periodic Paralysis." By James T. Putnam, M.D. *American Journal Med. Sciences*, Vol. CXIX, No. 2, February, 1900.

Putnam reports a case of this interesting neurosis, and gives some deductions as to the cause of these intermittent paralyses. In the same journal, November, 1898, eleven similar cases, all occurring in one family, are reported by E. W. Taylor. J. R. Mitchell in November, 1899, reports another case, one of several occurring in the same family. The usual history of these cases is given by Putnam as follows: "The cases are characterized mainly by a tendency on the part of the patient, generally a young or middle-aged and previously healthy person, to become rapidly paralyzed, usually in the night, so that for the space of the seizure, one or two days in length, he is incapable of voluntary motion, except as far as the face, eyes, and respiratory muscles are concerned, and not only this, but the electrical and reflex excitability of the affected muscles are diminished or lost, so that powerful faradic or galvanic currents, even when, as in Dr. Mitchell's case, applied with needles thrust into the substance of the muscles are powerless, at the height of the attack, to excite any response. The reflex and automatic movements necessary for organic life are rarely much involved, but even these are not always wholly free, and the heart sometimes becomes temporarily enlarged. The sensibility is rarely, if ever, affected. Many members of a single family in the same and successive generations are apt to be affected."

Putnam's case occurred in a young man, aged twenty-four, of good health, and of rather unusual muscular development. No other case of periodic palsy has occurred in the family. His first attack occurred when fourteen years old, since when severe seizures have occurred at intervals varying from one to seven months, with lighter attacks interspersed between them. The frequency of the severer attacks has been growing less as years have gone on. The onset is generally rapid, the patient going to bed in his usual health, and waking in the morning unable to move hand or

foot, though premonitory signs sometimes present themselves. Patient may be irritable or excitable a day or two before the attack. In some attacks paralysis is so complete that few muscles can be moved, except those of the lips and eyes.

The sensibility was found normal to touch, temperature, and pain, and the position of limbs. Attacks last from a few hours to two or three days, and, when substantially over, several days or a week may elapse before the patient's muscles regain full power. When seen during one of the attacks the electrical irritability of the various muscles and nerves corresponded almost exactly to the degree of paralysis. Knee jerks were absent, and likewise the abdominal and plantar reflexes. An examination between the seizures showed everywhere normal electrical reactions.

Putnam's deductions as to the influence of an abnormal inhibitory action on the part of the nervous system being a possible cause of this form of paralysis are very interesting and carry much weight. Unfortunately, a more lengthy review is not possible. In the following paragraph his views are to a certain extent expressed. After mentioning the experiments of Charles Bell in 1826, who demonstrated that relaxation instead of contraction could be made to follow an electrical stimulus, he says: "But if it is true that a stimulus, whether electrical or voluntary, may cause a muscle positively to relax instead of contracting, and true, also, as in the case of the blood vessels of the submaxillary gland, that when the force which tends to make a muscle relax and that which tends to make it contract are set in motion together, they preserve, nevertheless, their individuality, no great stretch of the imagination is needed for the conception that under certain conditions of disease the divorce between these two forces might be rendered more complete, and relaxation, even with loss of electrical irritability, as in the cases of periodic palsy, be made to dominate the scene. Perhaps if we knew how to look for them the clinical history of various other neuroses would be found to present phenomena more or less equivalent to this loss of electrical reactions and arrest of spinal reflexes, and due, like them, to the action of inhibition."

* * *

Thyroid Extract. A Review of the Results Obtained in the Treatment of One Thousand and Thirty-two Collected Cases of Insanity. By Wm. Mabon, M.D., and Warren Babcock, M.D. *American Journal of Insanity*, Vol. LVI, No. 2.

The authors state that their experience in the use of this remedy has been so satisfactory at St. Lawrence State Hospital that they decided to review all the published cases in which it had been used for the treatment of insanity, and they also sent out circulars of inquiry for information from those in charge of hospitals for the insane. The replies would indicate that thyroid experimentation has been carried on extensively in all varieties of insanity, and the best results obtained in stuporous melancholia of long standing,

in prolonged mania, particularly the recurrent type, and puerperal insanity, whether of the melancholic or maniacal form. Although it has been used in later stages of paresis, twelve hospitals reported that it was used without benefit, while seven replied that more or less benefit was received from its employment (?). Altogether thirty-six hospitals replied to these circulars, giving a total number of cases treated 508. Of this number, 364 remained unimproved, ninety-four improved, and fifty recovered, the percentage of recoveries being only 9.8. Twenty-eight replies showed that no bad effects followed the treatment, while eight specified the following unfavorable symptoms: "Persistent nausea and vomiting," "tachycardia," "heart failure and collapse," "profuse diarrhea" (in two cases), etc.

A review of 485 published cases treated by thyroid showed that 116, or 23.9 per cent., recovered, while 29 per cent. improved. The authors include sixty-one cases which have been treated at the St. Lawrence Hospital, forty-four being men and seventeen women. Almost all forms of insanity are included in the table. The results obtained were recovery in twelve cases, 19.8 per cent.; sixteen improved, 52.9 per cent. The report includes a carefully-prepared chart, showing the effects of thyroid on the body weight, and on the red and white blood cells.

* * *

LANDRY'S PARALYSIS. By Philip Coombs Knapp, A.M., M.D., and John Jenks Thomas, A.M., M.D. *Journal of Nervous and Mental Diseases*, Vol. XXVII, No. 2.

The authors report on three cases of this form of paralysis. Two of these recovered, while a third proved fatal. They review the more recent literature on this subject, which seems to show that in a majority of cases the changes found in the nerve cells since the introduction of Nissl's method are of an acute degenerative character. In at least three cases recently reported, one by Goebel, a second by Girandeau and Levi, and another referred to by Nonne, in none of the cases were any well-marked changes found in the nerve cells or nerve tissues in general, including the peripheral nerves, although the Nissl, Marchi, and Weigert stains had been used. Notwithstanding the failure to find certain changes in the case just referred to, Knapp and Thomas very rightly remark that "in a great majority of cases our modern methods prove conclusively that there is an acute parenchymatous degeneration of the peripheral motor neurone, manifesting itself most markedly at times in the ganglion cell, at other times in the axis cylinder process." The fatal case reported in this article presented briefly these clinical symptoms: A fairly healthy woman, aged about twenty-eight, admitted slight indulgence in alcohol, but never to excess. One morning, on awakening, she noticed stiffness and some weakness of lower extremities, so that she had difficulty in getting downstairs, etc. This paresis increased, and within three days from onset she was wholly unable to walk; the faradic irrita-

bility was lost in the muscles of the lower leg, without anesthesia, to touch, pain or temperature; slight involvement of sphincters. There was considerable tenderness on palpation over the posterior tibial, and slight tenderness over the nerves in the arm. The upper extremities were involved within eight days of the onset, and about the same time symptoms appeared pointing to paralysis of the throat and eye muscles. Patellar reflex was absent; abdominal and epigastric reflexes normal. Death occurred on the fifteenth day.

The examination of the cord by the Nissl method showed an increased amount of pigment in many anterior horn cells. In many of the large cells no nucleus or nucleolus could be found. In some of the cells a clear spot was observed, which the authors believe represent the location of the nucleus. In other cells the nucleus stained faintly and homogeneously. In almost all the cells where the nucleus is seen it lies not in the center of the cell body, but is dislocated towards the periphery. The Nissl protoplasmic granules, when present, did not stain sharply, and were ragged in outline. The cells in the posterior horns of gray matter showed in general little change. Sections of the cord stained by the Marchi method showed a diffuse degeneration all through the white substance. A cross-section of the sciatic nerve stained by the Marchi method showed extensive fatty degeneration of the myelin sheaths of a good many of the fibers. Similar changes were found in the fibers of the anterior and posterior roots of the cord. The blood vessels in and around the cord were distended with blood.

Among the good things said at the last meeting of the Medical Society of the State of New York, one of the best came from Dr. John H. Pryor of Buffalo, who illuminated the ecocomic aspect of State cure of consumptives in these words: "What we ask for is that the consumptive shall be taken care of at the right place and at the right time until he is well, and not at the wrong place and at the wrong time until he is dead." It is merely a question of whether we shall pay early or late. The consumptive is a public charge. We can admit the obligation early and make terms, or we can postpone payment until judgment by default is entered, covering every item of the account.

Dr. Buckley, editor of the *Christian Advocate*, said at a recent meeting that Christian Science, as a system of therapeutics, would have died ere this if it had not been put forward as a religion; and it would have died as a religion if it had not been put forward as a system of therapeutics.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, MARCH, 1900.

MEN AND MEANS.

A PARTY of English medical men in Italy, for the purpose of inspecting a new sanatorium for consumptives, arranged a visit to the laboratories of Celli and of Grassi, both of whom are devoting all their time to the study of malaria. An account of their visit appeared in the *British Medical Journal* for February 10, based upon notes furnished by Dr. Manson and Dr. Sambon of the London School of Tropical Medicine. "On December 30 the party visited the laboratory of Professor Grassi, which is situated in the attics of the buildings of the University of Rome. Here, among other things, they were struck by the contrast between the scanty equipment of the laboratory, and the importance of the results achieved in it with the simplest apparatus. Professor Grassi's humble workshop would be at once a revelation and a useful object-lesson to those who explain our backwardness in the higher departments of biological study by the poverty of laboratory accommodation and the lack of endowments. The rough, but perfectly efficient, means by which Professor Grassi, guided by Ross' work on *Proteosoma*, tracked out the malarial parasite through *Anopheles*, form in their crudeness a striking contrast to the beautiful drawings, each in itself a work of art, by which he illustrated his results. * * * Their feeling on parting from him was that they had seen a genuine workman and a genuine worshop."

Of Celli's laboratory it is said: "In Professor Celli's laboratory, as in that of Professor Grassi, the British visitors were struck by the simplicity, and, indeed, crudeness, of the apparatus and methods by which these important results have been obtained."

Extraordinary interest is always aroused when one contemplates in a single view the rude means and the perfect end of some masterly work. Such spectacles frequently appear in every field of human endeavor, and are sure to be cited whenever a plea is made for increased resources to carry forward any important scientific work. It is certainly true that difficult conditions often develop extraordinary strength in individuals, but there are few popular beliefs more fallacious than that the results of human effort are more closely related to the worker himself than to his materials or methods.

The limits of human achievement are far less controlled by innate faculty, infinitely diverse, than by material conditions, definitely resistant. Let anyone whose faith rests most upon the personal equation keep his accounts for a month in Roman numerals. A single such experiment will reduce all the mathematicians of the world to a dead level of helplessness, from which the true relation of man to his means may perhaps be perceived.

Such instances as these of the two devoted and brilliant Italians are inspiring even to the day laborers of science, but, in so far as they hold up

for our especial contemplation the scantiness of their equipment, they are examples for edification, and not for imitation. Exceptional force will assert itself under all circumstances, and certainly not less effectively in a favorable environment. The work of this world must be done by ordinary men, and does not, in any field, wait upon extraordinary men so much as upon improved means.

THE CLAIMS OF "CHRISTIAN SCIENCE."

On Tuesday, February 20, a delegation of about one hundred and fifty Christian Scientists appeared before the committee on hygiene of the Maryland house of delegates to urge an amendment to the practice act, exempting them from the legal responsibilities of medical practitioners. They were represented by three attorneys, who made the most of their cause. Opposed to them were half a dozen medical men. Mr. Hammond, a "First Reader" (not a primer) of a Christian Science church in Baltimore, was asked: "In a community of five hundred or a thousand persons, all of whom were Christian Scientists, what precautions would you take against infectious disease?" The reply, delivered in what we suppose was "First Reader" style, was: "In a community of a thousand, aye, in a community of five hundred souls, all Christian Scientists, disease of any sort would be impossible."

Mrs. Linscott of Washington is certainly no such rudimentary thing as a "First Reader." She is an extremely advanced text-book, and was able to fairly inundate the minds of her hearers with her eloquence. Being asked whether she employed the microscope in the diagnosis of diphtheria, she replied: "Yes, but not a material microscope. The microscope which we employ is the microscope of spiritual discernment." For a time it seemed doubtful if the modest gentleman who propounded the question would recover his speech.

The "Church By-Laws" on medical education were read to the committee, showing that the whole art of obstetrics may be imparted in four lessons, in as many days, and that the course in "mental practice and malpractice" occupies twelve lessons. It would be interesting to know how much of this *curriculum* treats of practice and how much of malpractice.

An instance was quoted, from the official organ of the cult, of a little girl who overcame the difficulties of fractions by repeating a religionistic formula; another story of a woman who subdued a conflagration in her house by "realizing" the ninety-first Psalm. Still another case was that of a woman having a carious tooth and a riotous ache, who in twelve hours obtained a sound and perfect set of teeth.

Most remarkable of all was the healing of a dumb child in Ohio by a Christian Scientist in Kansas, neither the healer nor the healed being aware that any treatment had been either sought or given. The Scientist, however, immediately her attention was called to the miracle, realized that virtue had gone out of her. The Scientists applauded vigorously each of these "demonstrations," and asserted that the misguided physician who cited these "cures" was an effective advocate of their cause.

No inventory of teeth was made at the hearing, but among the delegation one noticed at least one case of phthisis, one choreic, and one man with a misfit glass eye.

Book Reviews.

General and Local Anesthesia. By Aimè Paul Heineck, M.D., Clinical Instructor in Genito-Urinary Diseases, College of Physicians and Surgeons, Chicago; Clinical Instructor in Gynecology, Chicago Clinical School; Clinical Instructor in Surgery, Northwestern University Woman's Medical College. Pp. 124. Price $1. Chicago: G. P. Engelhard & Co., 358-362 Dearborn street.

The topics include the uses of Chloroform and Ether; the use of Anesthetics in Childbirth; Anesthetics for Diagnostic and Therapeutic Purposes; Anesthetics in Surgery; Selection of the Anesthetic as Governed by the Nature of the Operation; Posture and Preparation of the Patient; Rules for Administration of Chloroform and Ether; Precautions Before and After; What to Do in Cases of Accidents; Methods of Applying Local Anesthetics; the Use of Cocaine in Nose and Throat; in Genito-Urinary Surgery; Precautions for Cocaine Anesthesia; Infiltration Anesthesia and Its Technique.

A Text-Book of Embryology. By John C. Heisler, M.D., Professor of Anatomy in the Medico-Chirurgical College, Philadelphia, Pa. Philadelphia: W. B. Saunders; Baltimore: Medical & Standard Book Co.

That the study of embryology in our medical colleges is making rapid strides is shown by the number of books which are appearing on this subject. Some of the text-books are so brief as to be almost useless, others so comprehensive as to require more study and time than the student can give in his undergraduate years.

Heisler's text-book takes the medium path, while full enough to be intelligible for students of medicine, yet it is without that minuteness of detail which characterizes those larger treatises, and which serves so often only to confuse and discourage the beginner.

The opening chapters treat of the male and female sexual elements and the changes incident to maturation, fertilization and segmentation of the ovum. The chapter devoted to the description of the decidual placenta and cord will be found of especial value to the medical student.

The chapter devoted to the development of the various systems is clear, concise and interesting.

The general arrangement of the book is to be highly commended. Instead of following the development of the germ layers from hour to hour, from day to day, the changes occurring in each individual organ from its beginning to its end are described in separate chapters, so making each chapter complete in itself.

The illustrations, which are numerous and accurate, serve to render the text more readily understood.

The author has presented us a book eminently adapted for use in our medical colleges. J. L. H.

Refraction and How to Refract, Including Sections on Optics, Retinoscopy, the Fitting of Spectacles, etc. By James Thorington, A.M., M.D., Adjunct Professor of Ophthalmology in the Philadelphia Polyclinic; Assistant Surgeon at Willis' Eye Hospital; Associate Member of the American Ophthalmological Society, etc. Two hundred illustrations, of which thirteen are colored. Philadelphia: P. Blakiston Sons & Co.; Baltimore: Cushing & Co.

It is very seldom, in the present day, that one can say of a new book that "it fills a long-felt want," but it seems to us that phrase applies with special fitness to Dr. Thorington's work. There have been published any number of text-books and systems on the diseases of the eye, but the subject of refraction has been more or less neglected therein, and the student of refractive conditions left to secure the better part of his knowledge by a long course of actual clinical experience. Inasmuch as the correction of errors of refraction constitutes more than three-fourths of the oculist's daily practice, the beginner wants to know not only the theories of optics, but how to proceed in the study of any given case, in order to determine the existing condition and the desired correction.

Dr. Thorington meets that need by describing, in a clear, concise and practical way, the various steps of an examination and the advantages of the different methods to be employed. The chapter on optics is reduced to the simplest possible good working basis. The chapters on astigmatism and on muscles seem to deserve special mention. In the former, after an explanation of the varieties of astigmatism, the numerous ways of diagnosing it are given in detail, and in the latter a clear description of muscular imbalance, and the means of measuring it, is followed by instruction as to its treatment, the author taking a conservative position concerning operative measures. H. O. R.

Medical News Visiting List, 1900. New York and Philadelphia: Lea Bros. & Co.

We are again in receipt of the "Medical News Visiting List," which, like an old friend, pays us an annual New Year's call. This "Visiting List" comes in four styles—weekly, dated for thirty-five patients; monthly, undated for 120 patients; perpetual, undated for thirty patients per week per year, and perpetual, undated for sixty patients per week per year. All styles contain much valuable information, such as a quite extensive table of doses of remedies, most-frequently-used poisons and their antidotes, directions for the examination of the urine, etc. We regard this "Visiting List" as admirably adapted to its purposes. R. W.

A Text-Book of Materia Medica, Therapeutics and Pharmacology. By George Frank Butler, Ph.G., M.D., Professor of Materia Medica and Clinical Medicine in the College of Physicians and Surgeons, Medical Department of the University of Illinois, etc. Third edition. Philadelphia: W. B. Saunders, 925 Walnut street.

This excellent text-book, which has reached its third edition in three years, has been carefully revised by the author. If one desires to see how fully the latest therapeutic knowledge has been incorporated into its 826 pages, it is natural to examine especially the chapters on organo-therapy and serum-therapy.

The chapter on organo-therapy spares but half a page to the history of the subject, and considers in the following ten pages thyroid extract, supra-renal extract, nuclein and bone-marrow. Ovarian, mammary, and testicular extracts are merely alluded to.

Forty pages on serum-therapy treat tetanus, diphtheria, tuberculosis, pneumonia, cholera, streptococcus infections, syphilis, typhoid fever, influenza, reptile poisons, anthrax, and rabies.

The last chapter of the book, twenty-eight pages, is devoted to the art of prescribing.

The author's classification of medicines, based upon their therapeutic affinities, has been found convenient both for teaching and for reference. The clinical index, from page 827 to page 854, giving diseases and symptoms in black-face type, and the references to remedies in eight-point type, adds much to the value of the book. There is also a well-made general index between pages 855 and 874, in which the chief descriptive reference is made prominent by a heavier type. F.

Operative Surgery. By Joseph D. Bryant, M.D. Third edition. Vol. I. Pp. 587. New York: D. Appleton & Co.

This volume contains exceedingly well-arranged articles on general principles, anesthetics, antiseptics, control of hemorrhage, treatment of operative wounds, ligation of arteries, and the operative surgery of the veins, capillaries, nervous system, tendons, ligaments, fasciae, muscles and bones, amputations and plastic surgery.

The illustrations, of which there are fifty colored and 749 in all, are mainly taken from the large number of books on operative surgery by other writers, especially those of Treves, Esmarch and Kocher.

The writer describes the various operations very fully and carefully, and then, in a few lines at the end, discusses the results and per cent. of cures, etc., following the operations. The article on plastic surgery of the face is especially worthy of comment. This book should prove of great value to the medical student and the practicing surgeon. It is neatly bound in green cloth, and the letter-press is excellent. B. B. L.

New Books

IN FRICK AND GENERAL LIBRARY OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

	DATE.
Allbutt, F. C., ed., System of Medicine, Vol. IX	1900
Barker, L. F., Nervous System	1899
Bartley, E. H., Medical and Pharmaceutical Chemistry	1895
Birch, D. B., Practical Physiology	1899
Broadbent, Sir W. H., and J. F. H., Heart Disease, third edition	1900
Brown, J. J. G., Medical Diagnosis	1898
Bruce, J. M., Principles of Treatment	1900
Church, A., and Peterson, F., Nervous and Mental Diseases	1899
Collins, J., Nervous System	1900
Crook, J. K., Mineral Waters of the United States	1899
Donders, F. C., Anomalies of Refraction	1899

Duhrssen, A., Manual of Gynecological Practice..... 1895
Gould, G. M., ed., Students' Medical Dictionary, tenth edition..... 1899
Gowers, Sir W. R., Nervous System, third edition, Vol. I..... 1899
Hare, H. A., Medical Complications, etc., of Typhoid Fever..... 1899
Hedley, W. S., Therapeutic Electricity..... 1900
Heineck, A. P., General and Local Anesthesia..... 1900
Hobhouse, E., ed., Health Abroad..... 1899
Hollopeter, W. C., Hay Fever..... 1899
Kelynack, T. N., Pathologists' Handbook..... 1899
Kenwood, H. R., Public Health Laboratory..... 1893
Landesmann, E., comp., Therapie an den Wiener Kliniken..... 1900
Lydston, G. F., Surgical Diseases of Genito-Urinary Tract..... 1899
Macpherson, J., Mental Affections..... 1899
Morris, H., Renal Surgery..... 1898
Morris, H., ed., Human Anatomy..... 1899
Musser, J. H., Medical Diagnosis, third edition..... 1899
Ortner, N., Specielle Therapie innerer Krankheiten..... 1900
Park, W. H., Bacteriology in Medicine and Surgery..... [1899]
Rieder, H., Atlas Urinary Sediments..... 1899
Smith, F. J., Differential Diagnosis, etc..... 1899
Stöhr, P., Text-Book of Histology..... 1898
Thomson, St. C., Cerebro-spinal Fluid, etc..... 1899
Thorington, J., Refraction, etc..... 1900
Walker, N., Dermatology..... 1899
Warner, F., Nervous System of the Child..... 1900
Virchow, R., Post-mortem Examinations..... 1896

ROHÉ MONOGRAPHS.

DATE.

Adamkiewicz, A., Die Functionsstörungen des Grosshirnes..... 1898
Arndt, R., Die Neurasthenie (Nervenschwäche)..... 1885
Bechterew, W. von, Leitungsbahnen im Gehirn und Rückenmark... 1894
Becker, T., Einführung in die Psychiatrie..... 1896
Benedikt, M., Hypnotismus und Suggestion..... 1894
Binswanger, O., Pathologische Histologie der Grosshirnrinden-Erkrankung 1893
Bleuler, E., Der geborene Verbrecher..... 1896
Bothe, A., Familiale Verpflegung Geisteskranker..... 1893
Breuer, J., und Freud, S., Studien über Hysterie..... 1895
Cohn, S., Uterus und Auge..... 1890
Cramer, A., Gerichtliche Psychiatrie..... 1897
Dannemann, A., Die psychiatrische Klinik zu Giessen..... 1899
Delbrück, A., Gerichtliche Psychopathologie..... 1897
Delbrück, A., Pathologische Lüge..... 1891
Dreyfuss, R., Krankheiten des Gehirns und Naseneiterungen..... 1896
Erlenmeyer, A., Unser Irrenwesen..... 1896
Eulenburg, A., Sexuale Neuropathie..... 1895
Flügge, C., Grundriss der Hygiene..... 1894

Forel, A., Der Hypnotismus..... 1891
Günther, R., Behandlung der Irren Verbrecher..... 1893
Hegar, A., Der Geschlechtstrieb..... 1894
Hitzig, E., Quärulantenwahnsinn..... 1895
Janet, P., Geisteszustand der Hysterischen..... 1894
Koch, P., Der otitische Kleinhirnabscess..... 1897
Koch, T. L. A., Psychopathischen Minderwertigkeiten, three pts..1891-93
Kölle, T., Gerichtlich-Psychiatrische Gutachten..... 1896
Kraepelin, E., Einfluss acuter Krankheiten a. d. Entstehung von Geisteskrankheiten 1891
Kraepelin, E., Ueber d. Beeinflussung psychischer Vorgänge..... 1892
Krafft-Ebing, R. von, Lehrbuch d. Gerichtlichen Psychopathologie. 1892
Krafft-Ebing, R. von, Lehrbuch der Psychiatrie..... 1897
Kurella, H., Naturgeschichte des Verbrechers..... 1893
Laehr, H., Darstellung krankhafter Geisteszustände in Shakespeare's Dramen 1898
Liébeault, A. A., Der Künstliche Schlaf..... 1892
Masson, L., Traumatismes Craniens..... 1894
Munk, H., Functionen der Grosshirnrinde..... 1890
Näcke, P., Verbrechen und Wahnsinn Beim Weibe..... 1894
Oppenheim, H., Die traumatischen Neurosen..... 1892
Peillon, G., Etude historique sur les organes génitaux de la femme.. 1891
Pick, A., Pathologie und pathologischen Anatomie des Centralnervensystems 1898
Piper, H., Aetiologie der Idiotie..... 1893
Ranschburg, P., und Hajós, L., Psychologie des hysterischen Geisteszustandes 1897
Rehfisch, E., Der Selbstmord..... 1893
Römer, A., Psychiatrie und Seelsorge..... 1899
Schlesinger, H., Rückenmarks- und Wirbeltumoren..... 1898
Schlesinger, H., Die Syringomyelie..... 1895
Schmiedeberg, O., Grundriss der Arzneimittellehre..... 1895
Scholz, F., Fortschritte in der Irrenpflege..... 1894
Scholz, F., Vorträge über Irrenpflege..... 1895
Scholz, F., Reform der Irrenpflege..... 1896
Schwarz, O., Augenstörungen und Hirn- und Rückenmarks-Krankheiten 1898
Siemerling, E., Beiträge zur forensischen Psychiatrie..... 1897
Snell, O., Hexenprozesse und Geistesstörung..... 1891
Tourette, G. de la, Traité de l'hystérie, two vols..... 1895
Werigo, B., Effecte der Nervenreizung..... 1891
Wernicke, C., Grundriss der Psychiatrie..... 1894
Wernicke, C., Pathologie des Nervensystems..... 1893
Wetterstrand, D. G., Der Hypnotismus..... 1891
Windscheid, F., Neuropathologie und Gynaekologie..... 1897
Wundt, W., Hypnotismus und Suggestion..... 1892
Ziehen, T., Psychiatrie..... 1894

THE THIRTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

PARIS, AUGUST 2-9, 1900.

THE following information is given in response to many inquiries concerning the distribution of members of the Congress among the different sections:

Every member has the right to be enrolled in all sections in whose work he desires to participate, and that without any formality beyond his general application for membership in the Congress. The transactions of each section will be published in a distinct volume, so that twenty-four volumes will form the complete set. It will not be possible to furnish these twenty-four volumes without charge to every member of the Congress. Each member will receive, free of cost:

1st. A volume containing a *résumé* of the whole work of the Congress.

2d. A volume giving in full the proceedings of the Congress in general assembly.

3d. A volume containing in full the work of the section to which he was attached.

If a member has enrolled himself in several sections, he will receive the transactions of that section named first upon his membership card.

Members who desire several or all the volumes should apply to M. Masson, editeur du congrès, 120 Boulevard St. Germain, for the terms, which will shortly be determined. The prices will be scaled according to the number of volumes ordered.

PLACES OF MEETING FOR THE SESSIONS OF THE CONGRESS.

General Assembly on August 2, 5 and 9, Grand Amphithéâtre de la Sorbonne.

SECTION MEETINGS.

1. *Sciences biologiques.*

1. Anatomie descriptive.....Collège de France, salle n° 6.
   Anatomie comparée.....Collège de France, salle n° 8.
2. Histologie et embryologie.....Pavillons d'Histologie et Amphithéâtre Cruveilhier (Ecole pratique).
3. Physiologie .....Amphithéâtre de Physiologie (Sorbonne).
   Physique et Chimie biologiques..Amphithéâtre de Physique et de Chimie (Ecole pratique).

2. *Sciences médicales.*

1. Pathologie générale.....Amphithéâtre de Pharmacologie (Faculté de médecine).
2. Bactériologie .....Institut Pasteur.

3. Anatomie pathologique.....Amphithéâtre de M. Chantemesse (Faculté de médecine).
4. Pathologie interne.....Grand Amphithéâtre (Faculté de médecine).
5. Maladie de l'Enfance.....Amphithéâtre Turgot (Sorbonne).
6. Thérapeutique .....Amphithéâtre du sud (Ecole de Pharmacie).
7. Pharmacologie .....Amphithéâtre du nord (Ecole de Pharmacie).

Matière médicale.....Galerie (Ecole de Pharmacie).

8. Neurologie .....Amphithéâtre Richelieu (Sorbonne).
9. Psychiatrie .....Amphithéâtre de Géologie (Sorbonne).
10. Dermatologie .....Saint-Louis.

3. *Sciences chirurgicales.*

1. Chirurgie générale.....Grand Amphithéâtre (Ecole pratique).
2. Chirurgie de l'Enfance.....Amphithéâtre Descartes (Sorbonne).
3. Chirurgie urinaire.....Hôpital Necker.
4. Ophtalmologie .....Amphithéâtre de Chirurgie (Hôtel-Dieu).
5. Laryngologie .....Amphithéâtre n° 3 (Faculté de droit).
6. Otologie .....Amphithéâtre n° 4 (Faculté de droit).
7. Stomatologie .....Grand Amphithéâtre de l'avenue Victoria.

4. *Obstétrique et Gynécologie.*

1. Obstétrique .....Amphithéâtre de Physique (Sorbonne).
2. Gynécologie .....Amphithéâtre de Chimie (Sorbonne).

5. *Médecine publique.*

1. Médecine légale.....Petit Amphithéâtre de la Faculté de médecine.
2. Médecine et Chirurgie militaire..Petit Amphithéâtre (Val-de-Grâce).

Médecine navale.....Grand Amphithéâtre (Val-de-Grâce).

Médecine coloniale.....Amphithéâtre de Chimie (Val-de-Grâce).

NEXT TIME.

We have in hand a collection of replies from well-known clinicians and surgeons to a special inquiry concerning the indications for operation in cases of appendicitis. These brief expressions are of great interest, and were intended for publication in the present issue of the Maryland Medical Journal. They are unavoidably omitted, much to our regret, since the article was definitely promised, and is expected by many of our readers. We shall endeavor to make amends by giving this matter a more appropriate setting in our April number.—Editor.

MARYLAND
MEDICAL JOURNAL

A Journal of Medicine and Surgery.

Vol. XLIII—No. 4 BALTIMORE, APRIL, 1900 Whole No. 983

THE PRESENT STATUS OF THE APPENDICITIS QUESTION,

AS SHOWN BY THE RECENT LITERATURE AND SOCIETY TRANSACTIONS OF FRANCE, GERMANY, ENGLAND AND THE UNITED STATES.

By Hugh H. Young, M.D.,
Baltimore.

A GLANCE at the medical journals of today reveals at once the lively interest which is being taken in appendicitis, but a more careful inspection shows the woeful divergence of opinion among representative men as to the treatment of this most important affection.

Here you find the ultra-conservative lauding the curative powers of opium; there you find the radical surgeon anxious to operate in every stage of the inflammation. Between these two extremes are found the great body of the profession, some leaning to the one and some to the other side, the majority still uncertain as to what is the best course to pursue.

It is particularly in regard to the treatment of the acute attack that the war has been waged. It is pretty well settled that the proper treatment of chronic recurrent appendicitis is operation, and no one questions the propriety of opening the well walled-off abscess; but as to whether all acute cases, seen early, should be subjected to operation, in view of the acknowledged success of medical treatment in a large proportion of these cases, or whether when first seen, at a later stage, with beginning symptoms of peritoneal suppuration, it is wise to operate through an uninfected abdomen, in the face of high operative mortality in such cases, or whether it is better to wait for the peritoneal cavity to interpose a wall of protective adhesions, are questions yet to be settled.

In order to ascertain the opinions of recent writers on the subject we have abstracted from the principal magazine articles and society proceedings in France, Germany, England and the United States, with the hope of showing a preponderance of evidence sufficient to settle these important questions.

IN FRANCE.

During the past two years almost every medical society in Paris has been involved in an exciting discussion on appendicitis. Interest in the subject was started by a series of articles on the toxicity of appendicitis by Dieulafoy, which appeared in *La Presse Médical* for 1898, and in the *Bulletin de l'Académie de Médecine de Paris*, 1899 (Vol. XLI, pp. 174, 247, 190). Professor Dieulafoy, after a careful study of the disease, became an ardent champion of surgical intervention, although himself not a surgeon. His conclusions were that the only way to prevent severe forms of appendicular intoxication is to remove the toxic focus; that operation should be performed early, in order to avoid complications; that *no patient should die from appendicitis*. These papers made a great impression, and at the Société de Chirurgie, June 29, 1898, the discussion on appendicitis began.

TRANSACTIONS OF THE SOCIETE DE CHIRURGIE.

POIRIER (*Revue de Chirurgie*, 1898, p. 769) read a paper on the treatment of acute appendicitis, which started a discussion which lasted over a year, and involved all the French societies. He asserted that the surgeon always cures if called in time, and that he knew no contraindication to surgical intervention.

BRUN did not believe that all cases of appendicitis should be operated on. When he was called in during the first four or five days he always used medical treatment (opium), but if at the end of twenty-four to forty-eight hours this treatment did not bring about some modification of the temperature, he advised operation. In septic cases he operates immediately.

ROUTIER did not agree with Poirier in advising immediate operation in all cases. If seen and diagnosed in the first few hours of the disease, operation should be done. Collection and encystment of the pus is a step towards cure, and Routier rather prefers, where the case is not seen early, to wait for localized abscess, which he simply evacuates, unless the appendix is easily removed. He thought rapidity of pulse more important than temperature.

RICHARD protested against the views of Poirier. He would treat every case observed from the outset, no matter what the violence of the symptoms, by rest, opium, and ice, operating only when alarming symptoms supervene. Since doing this he has had fewer occasions for operating in the crisis. After recovery from attack, he would not advise the interval operation unless there remained a localized tender mass, etc.

BROCA thought, as a result of observation of 200 cases, that most patients who died of peritonitis had passed through a period when the infection was localized in the neighborhood of the appendix, and consequently curable, and that, therefore, operation should be performed as soon as diagnosis was made.

POTHERAT agreed with Poirier, but SCHWARTZ, who followed him, took the opposite stand, advising medical treatment at first, and operation later.

Guinard thought that with perforation of the appendix, or periappendicular abscess, operation should be immediate. In other cases it is best not to interfere during the crisis, but one should always operate after the first attack.

Neynier stated that it was his rule in those cases in which the symptoms present nothing alarming to institute medical treatment; but at the first sign of localization, if the temperature was elevated, he operated at once, so as not to allow the pus to accumulate and rupture into the abdominal cavity.

Walther compared his own statistics for the year 1896, when most of the cases were operated on during an acute attack, with his statistics for 1898, when he operated on only the very grave cases during the attack, and showed that the results were identical. The temporizing policy he now thought more advisable. He strongly urged removal of the appendix in abscess cases, citing cases of recurrence where this had not been done.

Quenu divided appendicitis into—1. Peracute, where perforation occurred in the first few hours; 2. Acute, but without general participation of the peritoneum; 3. Subacute; 4. Chronic.

For the very acute cases the world is in accord—operation gives the only chance. The divergence of opinion concerns the acute and subacute varieties. Between systematic abstention and systematic operation there is a place for a therapy which holds itself ready to act, but does not intervene except on definite indications. The pulse is more important than temperature; an arrest of gas (by bowel), a marked change in the countenance, and a bad breath indicates a grave crisis. In the presence of these signs, operate without delay.

Tuffier thought that the conduct of the surgeon depended on whether he was called in at the beginning, during the course, or after the termination of the crisis of appendicitis. If called at the beginning, he should operate without any delay. He mentioned nine of his cases which ended fatally of peritonitis through temporizing. Every case that recovers without operation should be subjected to excision of appendix later, so that the temporizing policy in early cases gains nothing, and invites many dangers. He thinks the operation at the beginning no more dangerous than that in the interval.

When called during the attack one may find the disease well localized, or a mass in the iliac fossa. "Armed expectancy" is the proper course in each case. If there is no acute sign of suppuration these cases are reserved for operation in the interval. If, on the contrary, the surgeon is appealed to in the period of diffuse peritonitis, intervention is the only hope. In ten such cases Tuffier lost seven.

Chaput thought immediate operation advisable in all cases of acute appendicitis, because the exact diagnosis of the lesions is impossible; because the prognosis cannot be made with certainty; because waiting aggravates the lesions; because the early operation is just as innocent as the operation in the interval; because

this alone can save the patient whom the expectant treatment would allow to die suddenly. He had operated on fifty acute cases without peritonitis, with no deaths; eight with localized peritonitis, with no deaths; seventeen with general purulent peritonitis, with seventeen deaths. Hartman's statistics were similar—131 interval operations, with no deaths; 146 operations in the attack, with six deaths (4 per cent.); 102 with purulent peritonitis, with eighty deaths—"a powerful argument in favor of early intervention."

THE VERDICT OF THE SOCIETE DE CHIRURGIE.

On April 26, 1899, Poirier ended the discussion on appendicitis, probably the most noteworthy that has ever occurred, by "establishing" that the very great majority of the society held the following views:

(1) There is no medical treatment of appendicitis.

(2) In acute cases operate as soon as possible after the diagnosis is made.

(3) In doubtful cases it is better to operate.

(4) In subacute cases it is justifiable to wait and operate between attacks, but most of the members prefer to operate at once.

(5) Suppurative appendicitis demands instant operation.

(6) In slight cases it is less risky to operate at once than to wait for the interval.

(7) The steps of the operation must vary according to the needs of each particular case; resection of the appendix should be practiced in every case where the search for it does not involve much injury of the tissues. Possibility of hernia is no reason for waiting to operate in the interval.

Poirier gives the credit for the results achieved to Professor Dieulafoy.

THE ACADEMIE DE MEDECINE.

Dieulafoy, before the Académie de Médecine, session of January 31, 1899, discussed the report of Chauval on appendicitis in the army, in which were reported eighty-three cases treated by medical means, with a mortality of 30 per cent. He says:

"Opium and purgatives, purgatives and opium—these are the simple means medicine opposes to the terrible appendiceal toxi-infection. Some say: 'Take care not to prescribe purgatives to a patient with appendicitis. Nothing is more fatal, for it excites the movements of the intestine, favors the development of the disease, brings on the gravest complications. Therefore, give opium, immobilize the intestine, and bring on constipation.' The others say: 'Purge him, for it is a means of practicing intestinal antisepsis; purge him, for it is a means of combatting infection of the intestine. This infection is the primary cause of the disease.' These are the opinions, diametrically opposed, and defended with equal conviction."

Dieulafoy recognizes three classes:

(1) Benign appendicitis—little painful, little or no fever, which increase, on the one hand, the chapter of the "old typhlitis," and

which end often in a gangrenous appendicitis, peritonitis and death.

(2) Appendicitis, grave from the beginning.

(3) Appendicitis *larvé*, with insidious onset, the symptoms of which are masked by "indigestion" and other symptoms.

There is no medical treatment, and all cases should be operated on; those in class (1) in the first twenty-four to thirty-six hours if possible. In class (2) need of operation is more urgent; it should be done during the first fifteen to thirty hours.

Dieulafoy thinks it important to distinguish appendicitis from maladies similar to it, especially entero-typhlo-colitis, and thinks that pseudo-appendicitis is responsible for some of the supposed cures of appendicitis by medical treatment.

The *Lancet* thus sums up the discussion on appendicitis in Paris during 1898:

"Every surgeon successively laid before the meeting his views upon the origin and course of appendicitis, together with that most important point, the conditions which, in his opinion, made it necessary to interfere by operation, or the reverse. At the same time the physicians discussed the matter at their own particular society, and the question was also argued by both physicians and surgeons at the Academy."

"One rather remarkable result was arrived at: The physicians, with Professor Dieulafoy at their head, insisted that appendicitis ought to be treated at the earliest possible moment, while the surgeons, led by Professor Tillaux, considered that in many cases a waiting policy and medical treatment were quite sufficient, and that this was especially the case in the first attacks. Professor Dieulafoy says there is no such thing as medical treatment of appendicitis."

"Many of the younger surgeons, however, supported the opinion of Professor Dieulafoy, and their ideas appear to have won the day in this long discussion, and the majority seem at last to have been in favor of the extreme rule of operating always, even in mild subacute cases."

At the *Congres Français de Chirurgie*, October 16 to 21, 1899, the discussion on appendicitis showed a marked change from the very radical views which were adopted a few months before.

Roux, in a paper on the diagnosis of appendicitis (*Rev. de Chir.*, Vol. XX, p. 584), insisted upon the insufficiency of the so-called pathognomonic signs of appendicitis. Relying on these signs one is led into grave errors, and it is dangerous to operate early. One may open up a benign case that has a tendency to become encysted. Immediate operation is wrong. Wait till the peritoneal reaction has subsided.

Larger, in a paper on the medical treatment, demanded a reversal of the accepted view that there was no medical treatment, and that such treatment of appendicitis was analogous to the same in strangulated hernia. He insisted that the great majority of

cases get well under medical treatment. Exceptionally it is necessary to intervene in the three periods as follows:

(1) *At the onset:* When the case is grave, but then only when everything is favorable for a well-executed operation.

(2) *During the course of the disease:* Only when the purulent collection is very extensive, or when the operation simply consists in opening an abscess, and is without danger.

(3) *After the subsidence of acute symptoms:* Only in persons leading active lives, or those who cannot follow the rules of hygiene.

Larger said in regard to the etiology that appendicitis attacks, by preference, degenerates, or those with a heredity of degeneracy.

GUILLEMAIN reported twenty-one operative cases—seven chronic and fourteen acute—with no deaths. He also advised medical treatment, only operating when medical treatment failed, or a simple abscess presented.

IN GERMANY.

The Germans, adhering to old term perityphlitis, have always opposed both the American name "appendicitis" and the radical measures advocated by American surgeons. Their recent literature on the subject has not been abundant.

An article by Ewald in 1897, together with a more recent one by Herzog, may be taken as the best exposition of the medical methods of treatment, while the articles by Czerny, Kümmel, Sonnenburg and other surgeons show the very conservative views which are prevalent in regards to operative treatment.

EWALD (*Twentieth Century Practice of Medicine*, Vol. IX) says that from 90 to 91 per cent. of all cases of appendicitis, taken in the widest sense, recover without any operation. The treatment, in the first place, consists of the most absolute quiet, both general and of the intestines. Liquid nourishment is given in small amounts. The intestines should be immobilized by opium, beginning with a full dose, twenty to twenty-five drops of the tincture, to be repeated later, according to the pain, three or four times a day, in one-half or even less of the initial dose. As soon as the pain has ceased the opium is to be stopped, and a purely local treatment, or one directed against the existing dyspepsia, should be instituted. The condemnation of opium, on the grounds that it masks the symptoms and misleads patient and physician with a false sense of security, is erroneous. The use of cold or hot compresses serve as adjuncts to the opium treatment. The acute stage of the disease should always be over before an attempt is made to move the bowels, even if five or six days elapse, and this is best done by high enemata. The internal administration of purgatives should be avoided. Perhaps calomel may be given, but only after all acute symptoms, including pain on pressure, have disappeared, and increasing distention of the intestines imperatively demands evacuation.

Ewald resigns his patient to a surgeon under the following circumstances:

1. As soon as perforation has occurred, followed by a general peritonitis.

2. After abscess formation. It need not, however, be necessary for abscess to be apparent by pointing or fluctuation. Symptoms of constitutional disturbances or septic infection are to be our guide. A difference between pulse and temperature, *i. e.*, a temperature of 100.4° and a pulse above 110 or 120, is always an evil omen. The danger of the escape of pus into the abdominal cavity at operation is of little weight in such cases.

3. Operation is also indicated in cases of recurrent appendicitis in which the frequency and increasing severity of the attacks menace the life of the patient or interfere with his livelihood. It is doubtful whether, after a second attack, all cases should be operated upon.

4. Chronic cases, with a palpably swollen appendix, should be operated upon.

In all other cases Ewald advises against operation. After quoting numerous statistics, two conclusions are drawn: (1) That it is unnecessary always to operate at the earliest possible moment, and (2) that in cases of periappendicular abscess spontaneous resolution occurs in a number of cases, though how this occurs is yet uncertain. It is not justifiable to operate and remove an appendix solely to avoid a possible recurrence.

CZERNY (*Beiträge z. Klin. Chir.*, Bd. XXI, heft 2; *Progressive Medicine*, June, 1899, p. 130) thus sums up his views:

1. The first attack of appendicitis belongs to the physician. This attack may either subside without complication, in which case there is no indication for surgical intervention, or sooner or later, under alarming symptoms of a general or local nature, may lead to perforation, with abscess formation. Such an abscess either leads to general peritonitis, marked by rapid pulse, local peritonitic phenomena, dry tongue, etc., in which event immediate surgical interference is indicated, or the abscess remains circumscribed, becomes encapsulated, and after the subsidence of the first severe symptoms shows no perceptible changes, calling for surgical treatment, with primary removal of the appendix if possible.

2. All chronic recurrent forms of appendicitis, be they catarrhal, ulcerative, perforative or partially obliterative, belong to the surgeon (operation in the interval).

Czerny reports twenty-eight acute cases, with eight deaths (29 per cent. mortality)—a showing that would hardly lead one to follow his advice.

HERZOG (*Practische Grundzüge der Internen Behandlung der Perityphlitis; Zeitsch. f. Klin. Med.*, Bd. 36, 1899, p. 247) reports 285 cases of appendicitis treated by medical means. Of these there were 249 cases of "perityphlitis circumscripta," with four deaths (1.6 per cent. mortality), and thirty-six cases of perityphlitis diffusa

(with diffuse peritonitis), with thirty-six deaths. The mortality for the whole series was therefore 14 per cent.

The medical treatment preferred is opium. Purgatives are considered dangerous, and enemata only in mild cases in the beginning, or usually after six or more days. The operative treatment is not considered.

KUMMEL (*Berlin. Klin. Wochenschr.*, April 11, 1898; *Progressive Medicine*, June, 1899, p. 124) reports 104 cases of recurrent appendicitis operated on in the interval without mortality. In no case had the appendix returned to normal condition.

Kümmel thus classifies appendicitis:

1. Very acute form, with sudden onset, and well-marked peritoneal symptoms pointing to perforation or beginning peritonitis. In these immediate operation is indicated.

2. Cases of moderate severity, to be treated by medical measures, including opium. If there is no improvement of symptoms after a short time, operation is indicated.

3. Chronic cases; operation indicated.

THE GERMAN SOCIETY OF SURGERY.

At the twenty-eighth congress, April 5 to 8, 1899, Renvers read a paper on the diagnosis and treatment of appendicitis. He divides it into two classes, those which proceed without participation of the general abdominal serosa, and those which are complicated by peritonitis.

The course of local lesion depends upon the possibility of the contents being evacuated into the intestine. If this is possible, there is no symptomatic manifestation; if not, colic, nausea, etc., appear, and the ultimate prognosis depends upon the composition of the material enclosed within the appendix. If these conditions become aggravated it is necessary to remove the organ. In the second class we have, according to the virulence of the contents and the rapidity of perforation, either a peritonitis, with perforation, or a localized inflammation. The first can only be cured by operation in the first twenty-four hours. The second presents either a serofibrinous exudate or an abscess. If the exudate does not diminish after five days, an abscess has formed, which may also be cured spontaneously either by resorption or rupture into the intestine. Should one wait for this, or should one operate? It depends upon the progress of the clinical symptoms, the situation of the exudate, and the general condition. If, after the fifth day, the inflammatory symptoms increase, it is necessary to open the abscess.

After spontaneous "cure" the future condition depends on the contents of the appendix. Liquid contents are absorbed, and a real cure obtained.

EWALD described under the name of *Appendicitis larvata* those cases in which one observes for years vague pains, digestive troubles, etc. These are treated medically, but never cured, and are finally called neurasthenia. On examination one will find a localized pain on pressure during the attack.

KAREWSKI said that in order to judge the prognosis of an attack it was necessary to investigate the obscure symptoms which often precede the acute attack by several years. The attack of colic and dyspepsia, without peritoneal irritation, presages an attack which fills the peritoneum with particularly virulent material. Vesical irritation means peritoneal reaction. It is not rare for these prodromes to be followed by a retroperitoneal, painless suppuration simulating sciatica or psoas abscess.

SONNENBURG, in discussing the indications for surgical treatment of appendicitis (*Arch. f. Klin. Chir.*, Bd. 59, p. 626), said, "How ought the doctor to behave during an attack of appendicitis?"

To decide this question he must establish a good anatomical diagnosis, supported by the history, by a clinical examination, by the results of palpation. If one remembers that the attack does not represent the beginning of affection, that a violent crisis, with a rise in temperature and general symptoms, always indicates perforation or gangrene of the appendix, one ought in this case to recognize a circumscribed, periappendicular suppuration.

It is more difficult to establish a good prognosis, because one often meets disagreeable surprises in apparently mild cases, and it is best to analyze each particular case. If the local and general symptoms do not cease at the end of several days; if, above all, the pulse remains rapid in spite of the fall of temperature, one ought to operate, and operate (the experience and skill of each surgeon would furnish the decision whether to operate or not) quickly, always removing the appendix.

ROTTER held that it is impossible during a crisis to establish an anatomical diagnosis. To this Sonnenburg agreed. They agree also against those who believe that the appendix should always be removed.

KUMMEL believed in the conservative treatment. He never operated in light cases. In cases of medium intensity he operates only if the fever reappears.

IN ENGLAND.

While the subject of appendicitis has been extensively discussed in the English medical societies, no comprehensive studies have recently appeared, and the classical article by Treves in 1897 is still the guiding authority. The general belief of the profession is in conservatism. A few bold spirits advocate more radical measures.

TREVES, who, in 1887, introduced the interval operation for chronic appendicitis, in 1897 expressed himself thus (*Albutt's System of Medicine*, Vol. IV, p. 906): "There is absolutely no feature of the initial symptoms of the attack to enable the surgeon to foretell the advent of suppuration. The attack may begin with alarming violence, and end in ready resolution; on the other hand, the early symptoms may be very little marked, and yet suppuration may occur.

"I have seen a case which, at the beginning was considered to be one of acute general perforative peritonitis, end in perfect recovery in seven days. On the other hand, a perityphlitic abscess has been discovered in a patient who has never been laid up. I saw a gentleman, after three weeks of dyspepsia, during which time he was actively engaged in outdoor work, take a long journey on Sunday. He reached his destination Sunday evening, ate a good dinner, sat up smoking till midnight. At 2 A. M. he was seized with definite symptoms of acute perityphlitis, and at 2 P. M. on the same day when I saw him he was dying. The appendix had ruptured, as shown by autopsy.

"The sudden accession of such fatal symptoms sometimes follows the use of violent purgatives in cases that are apparently doing well."

Treves favors the use of medical measures at first; absolute rest, morphia (but only to relieve pain), hot fomentations. If the onset is mild a purgative given at once will often cut short an attack. If the attack is severe, an aperient is out of the question. Operation should not be undertaken before the fifth day except in presence of urgent symptoms. Abscess is the general indication for operation, and, as a rule, the longer the operation is delayed the more easily and directly can the pus be reached. Abscesses, as a rule, will rupture externally, or into the bowel, rather than into the abdominal cavity (the latter only eight times in sixty-seven cases).

Moullin (*Lancet*, December 16, 1899, p. 1657) more nearly adopts the radical American view than any of the English writers. He says that in England neither early operation nor operation during or after the first attack is in favor. The general hospital mortality is estimated at between 14 and 20 per cent. or more. Of these a certain proportion show signs of improvement before thirty-six hours have passed. No one, Moullin thinks, proposes to operate on these. They must, therefore, be excluded in an inquiry of this kind, and thus, by diminishing the total without affecting the cases in which suppuration or peritonitis occurs, make the proportion more unfavorable. If all cases were operated on within thirty-six hours, can it be imagined that the mortality would be, instead of 14 per cent., more probably 5, or even 2 per cent.? No one can predict what result may follow when the appendix is inflamed. Suppurative peritonitis may break out suddenly in the mildest cases. Moullin advises operation at the earliest possible opportunity in all those cases which have not shown definite signs of improvement within thirty-six hours. Excluding the very mild cases, relapses probably occur in about 60 per cent. of the non-operated cases. Placing it at 50 per cent., the case stands thus: Take 100 ordinary hospital cases, twenty-eight will suffer from local or diffuse suppuration and be operated on. Of the seventy-two remaining, thirty-six will suffer from one or more relapses, in each of which they will incur the same risk again, and each of which will lay them up in bed for twenty-five days.

The idea that cases that get well are non-suppurative is errone-

ous, as Moullin has shown by finding collections of pus at subsequent operations. If, in a case of inflamed appendix, thirty-six hours have passed without definite improvement, the responsibility for the consequences must rest with those who recommend that an operation should not be performed.

PICK (*A Treatise on Surgery*, 1899).—In mild cases, under appropriate treatment in three or four days, the pain subsides, the symptoms clear up, and the patient recovers. The treatment consists here of rest, and hot applications. The lower bowel should be emptied by an enema. Opium should be avoided, for it tends to mask the symptoms. In the large majority of cases the above treatment will be all that is necessary. If the symptoms persist and the temperature rises, the question of operative interference will have to be considered. It is a fact that a great number of cases clear up even when there is evidence of grave local mischief. But there is danger of the peritonitis becoming diffuse, or the patient becoming weakened, so that a later operation may be impossible. It is wiser to wait a few days until the pulse-rate shows a tendency to increase. Continuance of symptoms and increase of temperature are probably due to the disease taking on the suppurative form, and under these circumstances, by waiting a day or two, there is less danger of soiling the peritoneal cavity, as the abscess may be opened without going through the abdominal cavity.

THE DISCUSSION ON APPENDICITIS AT THE LONDON MEDICAL SOCIETY, NOVEMBER 27, 1899.

CALEY started the discussion by a report of 200 cases of appendicitis treated by medical and surgical means, with twenty-five deaths. Excluding forty-two chronic cases, there remained 158 acute cases, with twenty-five deaths—a mortality of about 16 per cent. Twenty of the fatalities were due to general peritonitis. Three cases of general peritonitis recovered (with operation probably). There were twenty-nine cases of localized suppuration, with no deaths, all undergoing operation. In all, sixty-five cases were treated surgically, with twenty-two deaths, the high mortality being due to the fact that most of the operative cases were severe. Caley does not discuss the merits of the two modes of treatment, but it is evident that his practice has been to use surgical treatment in acute cases only in emergencies.

MR. OWEN deprecated the admission of cases of appendicitis into medical wards. Medicines were useless. Severe onset was the worst prognostic symptom. As a general rule, the earlier a surgeon is called, and the sooner the appendix is removed, the better the prognosis.

MR. MANSELL MOULLIN thought that thirty-six hours should be the limit of the delay for observation. If the case was not improved at the end of that time, operation should be performed. He would not wait that long if suppuration had occurred.

MR. JAMES BERRY could not agree with those who advocated

such early removal of the appendix. The patient should be kept absolutely at rest in bed, and not disturbed by purgatives or enemata. It is rare for diffuse peritonitis to supervene. Often has he seen patients ill with acute appendicitis, general peritonitis, general distension and tenderness of the abdomen, quick pulse and high temperature get well under the conservative plan of waiting five or ten days, and then having the abscess opened, while exactly similar cases, treated by earlier and large operation, have usually ended fatally. Berry is in the habit of waiting a week. Out of twenty-four acute cases treated by free incision without regard to area of adhesions, five recovered and nineteen died. Out of twenty-one acute cases treated on the expectant plan, nineteen recovered and two died. He had followed these cases throughout, and was convinced that they were alike and strictly comparable. They showed the wisdom of the expectant medical treatment. It is a matter of the greatest importance that incision should be made through the area of adhesions only. Incision in the semilunar line or through McBurney's point is usually too high, and leads into the abdominal cavity, while incision immediately above Poupart's ligament is by far the safest. The early operation for acute appendicitis does not, in the hands of most surgeons, yield very satisfactory results unless performed upon the lighter cases only, and delay of a few days will, in the great majority of cases, allow the performance of a simpler, safer and, on the whole, more satisfactory operation.

IN THE UNITED STATES.

The literature here has abounded in books, articles and discussions on appendicitis, and we can hope only to give a few extracts from the more important and very recent papers and society discussions. It is a pity that in the mass of literature so little accurate statistical information, on which alone many of the great problems can be solved, is to be found. America is the home of the ultra-radicals, and it is only of late that any champion has appeared for more conservative measures. But Richardson, in his recent article (*Am. Jour. Med. Sci.*, December, 1899), takes a strong stand against immediate operative treatment of certain phases of the acute attack.

Beck (*New York Med. Jour.*, 1898) holds that most cases of appendicitis do not come under the observation of the surgeon within the first forty-eight hours. In a series of twenty-seven cases operated upon as early as fifteen hours after the onset, none have died, while among those operated upon by Beck forty-eight hours after the onset there was a mortality of 24 per cent. He thinks that patients who are cured under medical treatment would also have recovered under operative treatment.

Immobilization of the intestines by opium, after a preceding evacuation of the lower bowels by an enema, will prove a perfect palliative in a large number of cases of appendicitis, but real cure cannot be expected. After the diagnosis is made the administration of opium is rational. So long as no physician is

yet able to ascertain bacterial virulence at the early stage, the safest therapy consists in the early removal of the appendix. If the patient or his advisors object to operation, the expectant immobilization treatment should be instituted. Should no competent surgeon be obtained, and should there be other difficulties, the risk of the expectant treatment should be preferred to a badly-performed operation in the acute attack. Considering that the mortality of simple appendectomy is almost *nil*, its performance should be urgently recommended to the patient after the first attack.

DEAVER (*Annals of Surgery*, 1898, Vol. XXVII, p. 303) classifies all cases of appendicitis under two heads, acute and chronic, the latter including those described as subacute, recurrent, or relapsing. Under the best-directed medical treatment all that can be hoped for in cases of appendicitis is temporary recovery. Surgical interference, instituted promptly, will, in the hands of experienced operators, be followed by a mortality of not more than 1 per cent., and, at the same time, remove danger of the subsequent attacks. While advocating immediate operation, Deaver states that the proper medical treatment is rest in bed, ice packs to stop the pain, a full dose of castor oil or small dose of calomel, and the avoidance of all opiates. Morphia or opium, given in the presence of acute indigestion, which is nearly always the forerunner of acute appendicitis, is objectionable, because it constipates and interferes with the normal secretions. It causes decomposition of the indigestible matter in the bowel, and masks the symptoms, thus obscuring, if not preventing, an early diagnosis. If ever allowable in appendicitis, it is only when purgative medicine is given at the same time.

The pain, tenderness and rigidity in many a case of suspected appendicitis vanish after a free action of a gentle purgative. Cold is often as effective as opium in causing cessation of pain, and is of therapeutic advantage.

The mortality is favorably influenced by the early administration of purgative medicine and the early use of the knife. Active purgatives are advisable and do no harm, even in advanced stages of the disease.

When a general peritonitis has developed, the following line of treatment gives the best results: The entire abdomen is packed in ice; good-sized doses of calomel are given on the tongue; strychnia is given hypodermically, assafetida suppositories, and all nourishment, with whiskey, by rectum; fly-plaster to the epigastrium, if persistent sick stomach is present.

Deaver believes in removing the appendix in the presence of pus. "When pus is developed in the peritoneal cavity the earlier the operation is performed the greater will be the percentage of recoveries." The secret of dealing with collections to the inside and at a distance from the cecum is in first cutting down upon the cecum, locating the site of the collection, and walling off with gauze; then making a secondary opening in the abdominal cavity

in the opposite side to the collection, introducing secondary packing, and then attacking the abscess, and removing the appendix through the primary incision.

The surgeon who waits for the appearance of severe symptoms, or for the symptoms to increase in severity, will have many unnecessary deaths to his charge. Deaver has often opened the abdomens of patients with normal temperature, flat belly-walls, and quiet stomach, with tenderness the only sign of persistent trouble, and has found pus or a gangrenous and perforated appendix.

HARSHAR (*Journal American Medical Association*, 1898, Vol. XXXI, p. 332).—It is the general belief, in which the writer shares, that a considerable number of cases seen in the first attack are either aborted by the medical treatment, or subside spontaneously at the end of twenty-four hours, and that of these the majority have no recurrence.

The advantage and the weight of opinion, if we may judge from the reports during the past year, are on the side of waiting this short period (twenty-four to thirty-six hours), except in fulminant cases. In this class there is general agreement in favor of immediate operation.

Should there be a recession of symptoms at the end of twenty-four hours, with the return of the patient to comfort and normal condition, the disease will probably go on to recovery without abscess or other serious trouble. Many attacks would be thus cut short on medical treatment. Should this fail, or the attack not subside in the time named, an operation ought to be done in every case. In fulminant cases the earlier the operation is done the better. The trouble with the prevailing practice is that the surgeon is not called in time.

In the intermediate and inflammatory stage, characterized by serious systemic disturbances, where the process is still limited, but not circumscribed by safe adhesions, it is probably better to use opiates to quiet peristalsis, and await the "walling-off" process. Here the patient is in imminent danger with or without operation, but the testimony of a limited experience and considerable observation convinces the writer that the least danger attends delay. It is the high mortality attending operation in this stage that discredits surgical intervention. Great systemic disturbance many times determines the operation when it should favor delay. If an abscess is formed, and the surgeon is called, and the more acute symptoms have subsided, operation is indicated, except when such abscess is centrally and deeply placed. In such cases, owing to the great difficulty of draining, it would be better to take the chances of evacuation through natural channels.

As to operation in the abscess period the weight of opinion is overwhelmingly in favor of leaving the appendix rather than break up protective adhesions.

H. A. HARE (*Jour. American Med. Asso.*, Vol. XXXI, p. 330), after detailing a few cases in which, on his advice, no operation was done, with fatal result, and others in which operation had been ad-

vised, but, on Hare's counsel, had not been done, with recovery, he proceeds to outline the indications for treatment of appendicitis. He divides all cases into three sets—those which undoubtedly should be operated on at once, those about which doubt exists, and those who get well of a moderate attack and have no recurrence.

Some cases get well without the knife, with good external treatment. There are very few cases in practice which need identical routine treatment, for individuals differ, infections differ, and circumstances differ. When surgeons recognize that appendicitis is a disease in which medical and surgical opinions are to be married, and when dogmatic operators cease to combat dogmatic physicians, then will these cases present the best statistics of recovery.

Opium will not cure the disease nor limit it. If it is used to excess it is harmful. If it is used in such amounts as to remove the pain and produce sleep it is abused. The question is not opium, or no opium; it is whether it is needed as a palliative of pain until the diagnosis is clear, or the surgeon is ready.

Hare believes that some cases are operative, and some are not. We must not expect to find the morbid lesions alike in two cases. In some there is pus in excess; in others gangrene, with no pus; in another class a tough mass surrounding the appendix as nutshell surrounds its kernel. It is an invariable fact that the more fulminating the inflammation the more dangerous the condition, and the fewer the physical signs. Indeed, aside from pain and general systemic symptoms, no signs may be found. In the gangrenous type pain is often but a fleeting symptom, and the steady development of septic, painless peritonitis misleads the physician, who cannot elicit pain, even upon pressure.

Appendicitis it not to be regarded as always an acute process. It is often subacute or chronic, insidious and provocative of aberrant symptoms, which mask the real trouble. As to the diagnostic symptoms of acute cases, rigidity is of great importance. Its presence should make one call the surgeon at once for his opinion.

COLEY (*Progressive Medicine*, January, 1899, p. 128), after reviewing recent literature on appendicitis, says: "Thus far I do not believe the advocates of operating immediately have by any means proved their case. The comparatively high mortality following operation in acute cases will be cited by the 'radicals' as evidence against the policy of waiting, while the absolute safety of the operation in the interval will be pointed out by the 'conservatives' as reason for attempting to pilot the patient through the acute attack, in order to have the appendix removed with safety in the interval. There is undoubtedly present a growing tendency among representative surgeons of the world toward conservatism in the treatment of acute appendicitis, and this tendency is fully warranted by a careful study of the data at present at our command."

DISCUSSION AT THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

RICHARDSON, at the meeting of February 21, 1898, presented an exhaustive paper based on 750 cases of appendicitis. This

paper has been elaborated, and a subsequent report made on a larger series of cases, to which we will refer later on. The spirited discussion which followed may be of interest as showing the status of the question at the birthplace of appendicitis.

WARREN thought that in acute forms, if seen early, it was best to operate at once, but in cases which have advanced far enough to make it evident that the infected area is small and is well walled off it is well to wait till the acute symptoms are over. In abscess cases he thought it safer not to make an incision into the free abdomen, as advised by Harrington.

WATSON said he was inclined to operate more frequently than Richardson. In cases seen after the second or third day in which the attack is evidently subsiding he was inclined to wait. At the beginning no one can tell how a case will progress, therefore we should operate early, even in mild cases.

HARRINGTON advocated his method of opening the abdominal cavity, and walling off with gauze before opening the abscess. When the appendix was to be removed from the abscess cavity this was the safer method, because in the effort to remove the appendix one usually was obliged to expose the healthy intestine.

CABOT expressed his satisfaction with Harrington's method, saying that he used it almost always now. He rather advised more frequent operating in acute cases; in the very sick cases, where there was a chance of the abscess rupturing into the intestine, and where the patient was distinctly improving steadily, it was well to wait.

RICHARDSON said, in closing, that in certain acute cases his reluctance to operate arose from the deplorable mortality in that group in which operation converts a localized peritonitis into a general one.

The papers by Richardson and Brewster, which appeared in the *Boston Medical and Surgical Journal*, 1898, Vol. II, p. 25, etc., together with the recent article by Richardson in the *American Journal of Medical Sciences* for December, 1899, are in many ways the most important papers that have appeared in this country for several years. Richardson thus summarizes the status of the appendicitis question at the beginning of his last paper:

"I. Should every case be operated on as soon as the diagnosis is made?

As a rule, the appendix should be removed if the diagnosis is made in the first few hours of the attack.

After the early hours (twenty-four) the operation is advisable—

(1) If the symptoms are severe, and especially if they are increasing in severity.

(2) If the symptoms, after marked improvement, recur.

(3) If the symptoms, though moderate, do not improve.

The wisdom of operation is questionable—

(1) In severe cases in which an extensive peritonitis is successfully localized, and the patient is improving.

(2) In cases which are at a critical stage, and which cannot successfully undergo the slightest shock.

II. Should the appendix be removed in every case?

It should not be removed—

(1) In localized abscesses with firm walls.

(2) When the patient's strength does not permit prolonged search."

"It should be removed whenever the peritoneal cavity is opened, unless the patient's condition forbids. The appendix should be removed in all cases as soon as the inflammatory process has had time completely to subside—in from two to three months after the attack. In cases simply drained the scar tissue should be excised, the appendix removed, and the wound securely sutured."

It will be noticed that this classification gives no place to mild cases seen early. This, however, is supplied in the text, where Richardson says that intervention can only be justified on the ground that a trivial attack is likely to become suddenly severe, an event which "is extremely improbable." Not that there is much danger, for practically all cases recover, "but the lesion is not grave enough to justify even so safe a procedure as laparotomy until repeated recurrences demonstrate invalidism." The cases with severe onset are then the only ones demanding immediate operation when seen early.

After twenty-four hours, if the attack continues in its original gravity, it may be concluded that an escape of infectious material has taken place, and there is at least a localized peritonitis, showing on operation, the contiguous parts covered by exudate and bound by weak adhesions, and free serous fluid in the abdominal cavity. In these severe, early cases operation is always advisable. A high leucocytosis may greatly assist here in the diagnosis.

The following conclusions have been drawn by Greenough in regard to leucocytosis:

1. Leucocytosis is a fairly constant symptom in appendicitis.
2. The presence, or absence, or degree of leucocytosis, without other data, is not sufficient to determine the local condition of the appendix and its surroundings.
3. In a series of cases the degree of leucocytosis corresponds roughly with the degree of temperature, but in individual cases great variations are found.
4. The degree of leucocytosis, when considered in connection with the duration of the attack, is of considerable assistance in the diagnosis of the local condition.
5. A high leucocytosis (above 20,000) on the first or second day of the disease suggests general peritonitis.
6. A low blood-count (below 10,000) after the first week, if accompanied by severe symptoms, indicates general peritonitis, and is of grave prognostic significance; but if accompanied by mild symptoms, denotes a mild catarrhal process or well walled-off abscess, which has become subacute in character.

7. A high leucocytosis (above 20,000) after the first week or ten days may be taken to indicate a local abscess.

Richardson gives a very elaborate study of the individual symptoms.

In speaking of the period at which operation is not advisable, Richardson says that unfortunately in the fatal days of appendicitis, the third, fourth and fifth, or even later, the results of operative treatment are still deplorable. Can we not tide them over to a time when intervention is almost surely successful, when the danger will be that of simple abscess drainage?

Although central localization of septic fluid about a gangrenous appendix cannot be interfered with in these early days without grave danger of causing general peritonitis, this danger must be encountered in very severe or septic cases. Any improvement, however, should cause postponement of operation. At operation you are certain to infect the peritoneum, but the appendicular infection may, if undisturbed, remain local. The chances favor non-intervention.

"It seems not unreasonable to conclude that in severe attacks, attended by large collections of fluids successfully localized, operation should be postponed for a time if there are signs of improvement, and more especially if the fluids are localized centrally, or in the pelvis."

It also "seems reasonably clear that patients are better treated medically than surgically when it is reasonably evident that the slightest shock may turn the scale."

Richardson reports 904 cases as follows:

Two hundred and thirty-eight interval operations; no deaths.

Three hundred and thirty-one acute operations; mortality 21.7 per cent.

One hundred and eighty-nine cases treated without operation; mortality 16.4 per cent.

The acute operative mortality "would have been enormously reduced by operating on all cases as soon as diagnosis was made." The only deaths included in the medical mortality rate were those that refused operation, or were moribund. Those that were operated upon and died went to swell the surgical mortality.

REMARKS ON THE PRECEDING LITERATURE.

A review of the preceding literature shows at once the greatest divergence of opinion on the points at issue. While individual and national characteristics and tendencies are in part responsible for this condition, there is no doubt that the lack of large statistics carefully studied is the main cause. Very few careful studies of the different phases of the disease, based on good case-histories, have appeared, and when they have each writer has generally promulgated a new, original classification, differing entirely from those of others, thereby rendering a collection of comparative statistics impossible. The reports have also been, as a rule, totally inadequate as regards the particular points of greatest importance.

The results of an examination of the recent literature may thus be summarized:

(A) There is a general agreement as to—

1. The high mortality of severe acute cases under any treatment;

2. The successful issue in mild cases regardless of treatment;

3. The freedom from danger of the interval operation in chronic cases;

4. The large percentage of relapses after one attack (between 40 and 80 per cent.).

(B) As to the points at issue, there is a pretty general disagreement. The principal questions for solution may be classified as follows:

1. Shall medical or surgical treatment be adopted in acute cases?

2. If medical treatment be used, shall it be—
   (a) Opium?
   (b) Purgatives?
   (c) Enemata?

3. When shall surgical intervention be undertaken in cases under medical treatment?

4. Shall surgical treatment be applied to all acute cases, including—
   (a) Mild cases seen early (first twenty-four hours)?
   (b) Mild cases seen after several days?
   (c) Severe cases seen in the first few hours?
   (d) Severe cases seen later than twenty-four hours?

5. How shall periappendicular inflammation (peritonitis) be treated when seen—
   (a) At the beginning?
   (b) After abscess has formed, but adhesions are few?
   (c) When abscess is well localized by strong adhesions?
   (d) When general peritonitis is present?

6. In localized abscess, is it best to perform—
   (a) Simple drainage, leaving the appendix?
   (b) Excision of appendix through abscess?
   (c) Laparotomy to inside of abscess, walling off abdominal cavity with gauze, opening into abscess, and removal of appendix (Harrington's method)?
   (d) Kocher's method (described below).

(B1) In England and Germany there is undoubtedly an overwhelming majority in favor of the medical treatment of acute cases. In France, although the surgical society of Paris favored very radical surgical measures for all cases, a strong party favored conservative treatment, and of late a reaction of sentiment has appeared among the surgeons. In this country radical surgical views have prevailed, but at present there is a tendency to conservatism in some cases, principally owing to the papers of Richardson.

(B2) Among the advocates of medical treatment there is the

greatest divergence of opinion as to the most suitable method. As Dieulafoy remarks: "Some say, 'Take care not to prescribe purgatives to a patient with appendicitis. Nothing is more fatal, for it excites the movements of the intestine, favors the development of the disease, brings on the gravest complications. Therefore, give opium, immobilize the intestine, and bring on constipation.' The others say, 'Purge him, for it is a means of practicing intestinal antisepsis; purge him, for it is a means of combatting infection of the intestine, the primary cause of the disease.' "

There is certainly no "medical treatment or cure." It is shown that purgatives will probably cut short a very mild attack, and also that they may cause perforation in critical stages. Opium is safe, but not curative.

(B3) There is the greatest difference of opinion on this question. Some only call in surgical aid when general peritonitis, or abscess formation, or severe toxemia has come on. Others advocate operation on exacerbation of symptoms, on a recurrence of severe symptoms after a marked improvement, and if a case, though moderate, shows no sign of improving.

Kocher's opinions, expressed in his letter to this JOURNAL, and found in the symposium, are as follows: "I find absolute indications for operation (1) when after that time (not having been summoned for two or three days) fever presents still a continuous or only slightly remittent type, or when the pulse is quickening and symptoms of general intoxication begin to set in. (2) When an abscess has formed, which is increasing, and is combined with progressing local inflammation."

(B4) The mass of evidence is in favor of operating at once in severe acute cases which are seen in the first few hours of the attack (class c), and in not operating in acute cases of mild form that are seen after several days have elapsed, and are improving (b). As to severe cases (class d), seen late, there is a considerable tendency to conservative treatment. The high operative mortality in this stage is the discouraging feature of surgical treatment.

The published opinions are of little help, for they fail to notice this particular question, or else are carried away by too conservative or by too radical views to admit any question as to the wisdom of a universal method in appendicitis. Deaver, Morris, Poirier, Broca, Chaput would nearly always operate. Treves, Pick, Brun, Routier, Richard, Ewald, Czerny, Renvers and Kümmel would wait for abscess. Quénu and Tuffier (quoted above) have thus expressed themselves in regard to such cases. Quénu says: "Between systematic abstention and systematic operation there is a place for a therapy which holds itself ready to act, but does not intervene except on definite indications." Tuffier says that "armed expectancy" is the proper course. Coley concludes, after a review of the literature, that the advocates of surgical intervention at once have not shown a lower mortality for such procedure. Richardson thinks that if operation is performed in all such cases

"we may operate at that very time when the patient's best chance lies in conservatism." He thinks that to open the abdomen and remove a perforated and gangrenous appendix is to invite general peritonitis. "When the infectious process has reached the peritoneum the prognosis is in many cases better under palliative than under operative treatment." We have given Richardson's views more at length above. Kocher's views, quoted in section 3, are also applicable here. This question is probably the most important of all, and one that requires a careful collection of comparative statistics before it can be determined what are the limitations of surgical treatment.

The early peritoneal invasion accompanying gangrene or perforation of the appendix, and before the peritoneal cavity has been walled off by firm adhesions, is the one about which the question of operative interference is most vital. The mortality under either treatment is very high, and it remains to be proven whether it is better to wait with the hope that peritoneal adhesions will successfully protect the abdominal cavity rather than do a septic operation through an uninfected abdomen. Before and after this stage of the disease, however, operative intervention is certainly indicated.

Class (a): Cases, with mild symptoms, seen early.

There is a general concurrence of opinion that the great majority of cases with mild onset will get well under medical treatment, and the vast majority of writers certainly favor medical means. It is also pretty generally admitted that operation in these cases is almost as free from danger as when done between attacks (*i. e.*, practically *nil*). The question, then, is whether the danger of a case with mild onset becoming severe is sufficient to justify or demand operation. Richardson thinks not. "The lesion is not grave enough to justify even so safe a procedure as abdominal section until repeated recurrences demonstrate invalidism. It is extremely improbable that a trivial attack is likely to become suddenly severe." Treves, as quoted above, says there is no feature of the initial symptoms to enable the surgeon to foretell the advent of suppuration. He mentions cases, in the experience of himself, Roux and others, beginning and continuing with the mildest symptoms, and yet suddenly showing extensive suppuration. "There is no evidence in support of the existence of 'appendicular colic.'" The appendix always shows disease. Moullin states that "suppurative peritonitis may break out suddenly in the mildest cases." Dieulafoy says that benign appendicitis, with little pain or fever, may end in gangrenous appendicitis, peritonitis, and death. He insists on the early removal of the appendix in all these cases. Archibald's statistics are very instructive. Among four cases of gangrenous appendicitis the pain began mildly in three cases. In twenty-two cases of abscess the initial symptoms had been mild in about half the cases, while in ten cases of general septic peritonitis the pain was slight at onset (nine of these died). These cases show that a mild onset may not always justify a good

prognosis. On further investigation it may be found very advisable to operate on most cases seen soon after the onset, regardless of the mildness of the attack. Statistics show that mild cases are just as prone to have recurrent attacks, and in Archibald's severe cases, quoted above, the great majority had had previous mild attacks. Fitz found that 44 per cent. suffered recurrence. Others have placed the rate much higher. The great majority of those that have one relapse have others, in each of which a mortality of at least 15 per cent. has to be figured on, and a patient who escapes one attack may not be so lucky in the second, third or fourth. Another argument for operation during the attack is that many patients will be more likely to consent to it then than when apparently well.

The probabilities as to recovery and hernia may thus be tabulated, taking the mortality at 14 per cent., and hernia probability at 10 per cent., recurrence after first attack at 50 per cent., and of subsequent attacks at 75 and 80 per cent. The figures would thus stand after five attacks for 1000 patients:

A TABLE TO SHOW THE ULTIMATE MORTALITY OF RECURRENT APPENDICITIS.

Attack.	%	No. of Cases.	Deaths.	Re-coveries.	Hernia.	Total Alive.
First	..	1,000	140	860	86	860
Second ...	50	430	61	367	37	796
Third	75	275	39	236	24	757
Fourth ...	80	189	27	162	16	730
Fifth	80	129	18	111	11	712

(These figures are, of course, only approximate, but the percentages assumed are low, and the conclusions are probably fairly accurate.)

Out of 1000 persons treated according to medical methods (surgical intervention being limited to evacuation of abscess), there would survive 712 individuals, of whom about 150 would have hernia, and admitting the liability to later attacks, after the five allowed in the table, one cannot claim more than 50 per cent. of sound recoveries among the 1000 subjects. The actual mortality up to the fifth attack, 288 persons, gives 28.8 per cent.—a mortality far in excess of that ascribed usually to surgical methods.

A correct non-operative mortality should certainly include these subsequent fatalities, which raise the rate to twice the mortality of the first attack.

This table is a strong appeal for the removal of the appendix in the interval after the first attack, if not removed previously.

(B5) There is no concurrence of opinion about these questions, except as to class c, well-localized abscess, when it is agreed that, if the condition of the patient permits, operation should be performed to evacuate the pus. The majority are agreed that operation is the only hope for general peritonitis, and Finney's cases are very instructive as showing what may be accom-

plished by eventration of the intestines, salt solution irrigation, and removal of exudates by scrubbing the bowel with gauze. Deaver thinks the ice pack more advantageous than operation.

Classes a and b have been discussed under section B4, the question being whether it is advisable to wait for adhesions, or to excise the appendix, with the danger of infecting the rest of the abdomen. Kümmel advises immediate operation in class a (beginning local peritonitis), while Czerny advises waiting for localization of abscess or general peritonitis. Practically all American surgeons would operate here. It is a little later, when the abscess is pronounced, but not walled off, that Richardson, Fenger, Warren, Harrington and others would question the advisability of operating. Extreme general toxemia, however, would indicate immediate operation, if the patient's strength permitted.

(B6) As to the surgical treatment of localized abscess, there is much discussion in the literature, the principal question being whether it is best to remove the appendix at the first operation. The majority of writers favor simple incision, as being much the safer procedure, when firm adhesions have to be separated before the appendix can be removed. The plan proposed by Harrington (c) has many advocates, especially among the Boston surgeons.

The method employed by Kocher, and published in another part of this JOURNAL, divides the operation into two stages, separated by several days, and would seem to be the safer procedure, because less likely to lead to hernia, since the second abdominal wound is closed, and the primary wound for evacuation of the abscess is relatively small.

There are no careful statistics as to the relative merits of these different procedures. If it can be shown that the mortality is increased by primary removal of the appendix in these cases the simpler operation should be adhered to.

THE NEED OF EXHAUSTIVE STATISTICS.

Perhaps the chief result of this study is a demonstration of woeful lack of comprehensive comparative statistics, on which alone many important questions in regard to appendicitis can be settled.

History-taking is generally intrusted to young graduates, or even students, who are not cognizant of the unsettled questions in regard to the disease, and are often careless. The clinical operative and pathological reports are rarely systematic and comprehensive, and when published are not carefully classified and studied. As a result, men with large clinical and operative experience, and splendid opportunities for a thorough study of the manifold phases of the disease, express themselves in varied and contradictory terms on similar questions.

It is asserted over and over again that statistics can be made to prove anything. Is this not true only when they are meager and carelessly classified? Thus, Richardson's mortality for acute cases which were operated on is 21.7 per cent., while under medical treat-

ment it is 16.4 per cent. But most of the mild cases were not operated on, although practically all would have recovered, and thus have greatly reduced the surgical mortality, as they have the medical. Then, too, the only fatalities recorded against medical treatment were those who were moribund, or died refusing operation, while all the other medically-treated cases, which were operated on as a last resort, with fatal result, were classed with the surgical failures. Such statistics are unjust and misleading. The relative merits of different methods of treatment can only be established by comparing the results of each in identical conditions, and until this is done we cannot hope for accurate solution of the questions about which such contradictory opinions exist.

During the past month a short paper by Archibald appeared in the *Montreal Medical Journal* (February), which, though brief, and detailing a comparatively small number of cases, is in many ways the most satisfactory contribution to our knowledge on appendicitis that has appeared for some time.

Archibald very sagely remarks: "Advance lies in the amassing of a large body of reliable particulars and their analysis in thorough and elaborate case reports, in careful cross-examination of the patient as to details, and in a rigid comparison of these clinical data with subsequent operative findings." By working backwards from the pathological findings to the clinical data he hoped to establish a diagnostic correlation between the two, and, "after acquiring enough particulars, to be able to lay down the general."

He has carried this out admirably in the seventy cases of appendicitis operated upon in the Royal Victoria Hospital during the year 1898. The seventy cases are divided according to the pathological findings into five classes, furnishing a careful and exhaustive analysis of the cases under each class. Our space is too limited to admit of a further study of his fine report. The seventy operative cases do not happen to include any very mild cases in which the appendix would probably have shown only a moderate "catarrhal" inflammation.

With the addition of this class, an amplification of the analysis of cases, and a classification of operative methods and results, mortality, peritoneal infection, relapse, hernia, etc., the analytical method adopted by Archibald would prove of inestimable value if carried out by a number of different observers.

No provision for study of cases is made under medical treatment. Having no pathological basis here, it would be necessary to compare them by clinical symptoms and physical signs with surgical cases of the same grade.

A careful, exhaustive statistical study of large numbers of similar cases treated by different methods, such as is outlined above, would soon decide many of the present uncertainties in regard to appendicitis, and put an end to the ridiculously contradictory assertions of representative men with which the literature now abounds.

THE INDICATIONS FOR SURGICAL INTERVENTION IN CASES OF APPENDICITIS.

EDITORIAL NOTE.—In the following article the views of an equal number of clinicians and of surgeons are brought to bear upon those points in the management of appendicitis concerning which it is most important that clinicians and surgeons shall be agreed. The two questions submitted are printed immediately below.

I. *Given a case of appendicitis: What are absolute indications for operation?*

II. *Given another case of appendicitis: How do you recognize the favorable moment for surgical intervention?*

ROBERT ABBE, M.D., New York:

I. A first attack: If symptoms ameliorate after the initial vomiting, the pain is well localized over the appendix and the temperature does not rise after the first twenty-four hours, put on ice and delay operation until convalescence, provided the patient can be kept under close observation and within immediate reach of surgery.

If the case grows progressively worse for twenty-four hours operate promptly.

If the onset is severe, the pain in the abdomen intense and tenderness to touch marked, with vomiting, irritable ("snappy") pulse, and coated tongue, operate immediately, inasmuch as many of this class represent the gangrenous type from internal pressure by appendical concretions and retained putrid contents, and may by instant operation be caught before rupture, which usually follows twenty-four hours after distention.

II. Any case which has passed the acute septic stage may be operated on in the interval, i. e., before another attack. Delay of at least a week is usually wise, but three days will, as a rule, be ample.

G. E. ARMSTRONG, M.D., Montreal:

I. *a.* In acute appendicitis, when the pain, tenderness, vomiting, elevation of temperature, acceleration of pulse and the facial expression indicate clearly the nature of the disease and that the lesion is localized, operation is absolutely indicated unless improvement results from twelve to twenty-four hours of rest, with ice or hot fomentations locally.

b. If during a mild attack or in convalescence there is a sudden accession of pain and tenderness, particularly if the latter tends to become more widespread.

c. In a probably gangrenous appendicitis.

d. In perforating appendicitis.

e. When a persistent tender tumor mass is present.

f. When fluctuation indicates a pericecal abscess.

g. When chills and sweats indicate that absorption is going on, or that a septic pylephlebitis is developing, which may end in abscess of liver or spleen.

h. Drainage in general septic peritonitis.

II. *a.* Localized appendicitis not readily yielding to other treatment.

b. A history of two or more attacks.

c. Persistence of soreness or a sense of something pulling after recovery.

Reginald H. Fitz, M.D., Boston, Mass.:

My experience with acute appendicitis leads me to recognize, from the therapeutic point of view, two principal classes of cases. In the one, immediate operation is demanded as a life-saving measure; in the other, delay is advisable until it becomes obvious that the patient's condition calls for an operation to check the progress of the disease or to promote the healing of an abscess.

Immediate operation is called for when the sudden onset of intense abdominal pain, and exquisite tenderness, in the region of the appendix is associated in the course of a few hours with a rapid pulse, elevated temperature, and retracted abdominal wall. The condition is indicative of a certain degree of shock, and the operation is likely to reveal a perforated appendix, or one whose wall is so gangrenous as to threaten early perforation.

In the second class of cases the initial pain and tenderness, though marked, are not intense. The pulse and temperature are elevated, the latter, perhaps, for a short time as high even as 103° F., or 104° F., and the abdomen is moderately distended and tympanitic. There is a certain degree of deep-seated, circumscribed resistance in the region of the appendix. Such cases form the large majority of those seen by the physician, and tend towards resolution, spreading peritonitis, or abscess formation. Surgical intervention is inadvisable in this group of cases until the progress of the disease indicates which of these directions is to be taken.

In the course of three or four days the symptoms fade away if resolution is to follow, and no operation is then expedient.

A spreading peritonitis is indicated by persistent elevation of the pulse and temperature, by increasing abdominal enlargement, and by an extension of the initial pain and tenderness from the region of the appendix towards the median line of the abdomen, the liver, or into the pelvis. Surgical intervention is then desirable to accelerate recovery and to diminish the risk of a sudden change for the worse.

If the inflammatory signs remain sharply defined in the region of the appendix, perhaps to be determined only by pelvic examination, and the symptoms are so mild as not to call for an operation on the third or fourth day, an abscess is to be suspected, especially when there is a sharply-defined and tender tumor in the right iliac fossa, slowly increasing, it may be, in size. An operation is then demanded to drain the abscess likely to be found, and to prevent its rupture into the intestine, bladder, peritoneal cavity, or through the abdominal wall. A more remote contingency in such cases, when an operation is too long delayed, although the pus may largely be absorbed, is that a pylephlebitis, with hepatic abscess, may ensue.

If the patient readily recovers from the first attack of appendicitis without the necessity of an operation, a second attack is likely to occur only in about one-half of the cases. An operation to prevent this possibility is therefore unnecessary in the above proportion. In about four-fifths of the cases in which a second attack is suffered it occurs within a year from the original illness. To avoid an unnecessary operation in one-half of the

patients, therefore, it seems desirable to wait and see if a second attack is to be suffered. If so, it is to be treated as in the first instance.

If successive mild attacks continue, the appendix should be removed when the patient is so long freed from symptoms as to indicate a quiescent state of the pathological structure.

There are conditions which make expedient an early operation even in mild cases of appendicitis. These are, first, remoteness of the patient from the easy and rapid access of skilled surgical aid; second, such occupation as exposes him to unusual violence, or requires him to take long journeys, especially to distant parts; third, exceptional timidity on the part of the patient which makes life burdensome through undue anxiety as to his future welfare.

These are offered as general considerations, covering the large majority of cases, realizing, however, that there is no rule without its exceptions, and that each group of cases may contain such as to make an immediate operation expedient or inexpedient.

The physician should give each patient a chance to recover from the immediate attack without an operation, since the great majority of attacks are mild, and since the least risk from operation, if it is to be performed, is taken when the appendix is removed while there are no symptoms of appendicitis. At the same time his patient should be repeatedly seen at short intervals during the progress of an attack, lest a change for the worse, which may occur within a few hours, is allowed to continue.

Dr. R. Kocher, Berne, Switzerland:

I. I have no doubt that most lives would be saved if a radical operation were performed in every case of appendicitis in the first hours or on the first day of the appearance of symptoms.

Given the fact that for most cases of appendicitis surgical intervention is *only called for* after two or three days, I find absolute indications for operation (1) when, after that time, fever presents still a continuous or only slightly remittent type, or when the pulse is quickening and symptoms of general intoxication begin to set in; (2) when an abscess has formed which is increasing and is combined with progressing local inflammation.

II. The most favorable moment for surgical interference in acute appendicitis is when a circumscribed abscess has formed, and the interference which has proved the best for me in recent years is the opening of the abscess at the point where we can get into it without opening the free peritoneal cavity. But then, according to a note which has just been sent for publication in the *Correspondenzblatt für Schweitzer Aerzte*, we have found it best to perform the radical operation *after a few days*, sometimes even after twenty-four hours, by typical incision at the place of election, with opening the peritoneal cavity and performing resection of the appendix, without touching the wound opening in the abscess cavity, which is left to heal by granulation as in other abscesses, whilst the wound opening the peritoneum is closed at once.

For patients who have gone through the acute stage with or without opening of abscess the best moment for surgical interference has arrived when every symptom of local inflammation and of general reaction is

over and when the radical operation can be done in the form called by Roux and Lausanne "*Resection au froid.*" We find the indications for this operation in every case where a local induration or sensitiveness of the appendix is left after a perityphlitis, and think it wise to do it whenever a patient wishes to be guaranteed against relapse.

ROBERT T. MORRIS, M.D., New York, N. Y.:

I. Given a case of *progressing* appendicitis, the absolute indications for operation are any symptoms which ensure the correctness of the diagnosis.

This opinion assumes that the patient is within reach of a surgeon whose records prove his ability to operate at any stage in the progress of the disease, and to make the death-rate, the suffering-rate, and the loss-of-time-rate less than can reasonably be expected under other forms of treatment.

This opinion further assumes that the case is within natural surgical limitations. For instance, if the patient has far advanced diabetes mellitus or post-compensatory dilatation of the heart in association with an attack of appendicitis, I would forsake my rule to "operate as soon as the diagnosis of appendicitis has been made," and would resort to consultation with authorities who were competent to estimate the comparative danger between operation, on the one hand, and, on the other hand, neglect of the focus of infection.

II. Given a case of *retrogressing* appendicitis, I would again recognize the favorable moment for operation as the moment when the diagnosis was made.

This opinion assumes that the patient is within reach of a surgeon who has proven his ability to make the operative death-rate, suffering-rate, and loss-of-time-rate less than it would be from mesenteric thrombosis, portal embolism, pylephlebitis, iliac phlebitis, dangerous peritoneal adhesions, and other late sequelae of infective appendicitis.

This opinion also assumes that the case is otherwise within natural surgical limitations.

Both of the opinions given in answer to questions I and II assume that the surgeon intends to work for the best interests of the patient, and not for the protection of his own reputation, or for the speculative effect of his action upon the sentiments of the community.

HERMAN MYNTER, M.D., Buffalo, N. Y.:

I. I look upon appendicitis as an exclusively surgical lesion. I do not deny that numerous cases recover under so-called medical treatment, but I maintain that they recover in spite of medical treatment, by the healing power of nature. Twenty per cent. of all cases are serious, and the mortality under any kind of medical treatment is about 20 per cent., which means that almost all the serious cases die. It is, however, the height of absurdity to compute the mortality in appendicitis from all cases. It is as absurd as if we would compute the mortality of the radical operation for hernia from all operations for hernia. If in 100 operations for hernia, all performed after Bassini's method, there were twenty with gangrene from strangulation, and these twenty died, then nobody would state that Bassini's operation had a mortality of 20 per cent. But that is just what is

done in appendicitis, particularly by physicians. They state that under medical treatment there is a mortality of 15 or 20 per cent. in all cases, while the truth is that the 80 per cent. which recover are the light cases, which would recover under any treatment, or without any other treatment than rest in bed and diet. The 20 per cent. of fatal cases are the serious cases with perforation, gangrene, and peritonitis, local or diffuse.

In Denmark, all cases of appendicitis are still treated almost exclusively with opium, and their statistics are convincing of the utter worthlessness of that treatment. In the diffuse cases Professor With had a mortality of 100 per cent., Floystrup 100 per cent. in the diffuse cases and 37 per cent. in cases with local abscess, and Monrad had 100 per cent. mortality.

We must classify our cases, and we will find that operations performed inside twenty-four or thirty-six hours have a very low mortality, as low as in interval cases, and that whether they are localized, gangrenous or perforating, while the mortality in the diffuse cases increases gradually with every day's delay in operating, till it reaches 67 per cent. on tenth day.

The pathological changes in a slowly-progressing appendicitis are similar to those in other tubes (such as urethra, Fallopian tubes, gall ducts): shedding of epithelium, formation of granulation tissue, cicatricial retraction, *stricture*, stasis with dilatation, hydrops, empyema, coprolites, necrosis, gangrene, perforation, peritonitis. Infection with the colon bacillus, however, may at any time and at any point lead to total gangrene, with rapidly fatal peritonitis. Perfect recovery after a serious attack occurs only after destruction of the appendix during a local abscess, and then independent of any known medical treatment, or else by the formation of an appendicitis obliterans. This form, however, may keep the patient in a state of chronic invalidism, with symptoms of nervous dyspepsia.

In cases of septic lymphangitis the appendix may macroscopically appear normal, but the microscope will show colonies of bacilli in the wall. This form is accompanied with symptoms of septic infection, such as somnolence, profuse perspiration, general malaise, high temperature, small, rapid pulse, pain in ilio-cecal region, followed by rapidly fatal peritonitis.

What, then, are absolute indications for operation?

1. All cases which are from the onset acute, with pain, vomiting, increased temperature, frequent pulse, muscular retraction, and in which no improvement occurs inside twenty-four or thirty-six hours. If the pulse increases to 110 and 120, and keeps there, or goes higher, operate at once.

2. In cases of septic lymphangitis, operate at once.

3. In cases of localized, circumscribed abscesses, make laparotomy, and extirpate if seen before fifth day. Incise and drain if seen from fifth day till tenth day, or later, but leave the appendix alone, unless easily found and removed.

4. In cases of diffuse peritonitis, with costal respiration, meteorism, fecal vomiting, and rapid, weak pulse, operate, unless patient is in extremis; drain both flanks and pelvic cavity. Operation offers the only chance, even though a poor one.

5. In chronic and tuberculous cases, with invalidism.

II. I do not recognize any moment as being more favorable for surgical intervention than any other, save the early one.

An operation performed inside twenty-four hours or thirty-six hours is as devoid of danger as an operation in the interval, but in cases of septic lymphangitis and sudden gangrene even this moment may be too late. The more severe the pain and the constitutional symptoms the more urgent is immediate operation, provided the patient is not in a state of profound shock. Surgery ought not to be held responsible for those cases which come too late to operation, with well-developed diffuse peritonitis.

Frederick A. Packard, M.D., Philadelphia, Pa.:

I. Persistent pain and tenderness in the right iliac fossa after the application of an ice bag, and thorough evacuation of the bowels. Local signs more marked than slight pain (spontaneous), and tenderness on deep pressure in the region of the appendix. The existence of increased resistance (not rectus rigidity), fullness or dullness means that the case has passed from the realm of medicine to that of surgery, and requires constant surgical supervision, if not immediate operation.

II. I consider that the favorable moment for surgical intervention occurs when it is evident that the case is not one of those that can be relieved permanently by the local application of ice to the right iliac fossa, and free purgation, with divided doses of calomel. Where amelioration does not promptly follow these measures (or even with a false improvement from the use of narcotics, but increasing physical signs), I believe that the sooner the appendix is removed the better. I would recognize it by persisting pain or tenderness in the iliac fossa, or by bulging, dullness, or superficial edema in that region. After these are present I see nothing but danger in delay.

Roswell Park, M.D., Buffalo, N. Y.:

I. Rising pulse-rate, rising temperature or subnormal temperature, increasing tumor or abdominal rigidity, intense pain, septic appearance (sordes, typhoid tongue, etc.), leucocytosis, symptoms of obstruction of the bowels, peritonitis, or increasing distension; these are the principal indications for operation, not one of which the surgeon can afford to disregard.

II. To recognize the favorable moment for operation is not always possible, nor for the surgeon even frequently so, since he is often called in after this moment has long passed. *The* favorable time is either the earliest possible, after recognition of the features previously mentioned, or else after a fairly well walled-off abscess has permitted one to feel that he may content himself with simple incision, evacuation of pus, and resting there till the time has come for an interval operation.

Nicholas Senn, M.D., Chicago, Ill.:

I. Absolute indications for operation are perforation and gangrene. In acute cases an early operation, that is, within forty-eight hours, is imperative, when the symptoms point to progressive peritonitis.

II. In relapsing appendicitis the time of choice for operation is during the interval between the second and third, or later attacks. In acute cases, after abscess formation has taken place, the operation is directed largely toward the treatment of the abscess, and the appendix is only removed when such a procedure does not add to the danger of the operation.

Frederick C. Shattuck, Boston, Mass.:

I. (a) A fulminating onset, with severe vomiting and pain, marked local tenderness, distension, and leucocytosis.

(b) In a case beginning mildly, increase in the peritonitis symptoms instead of subsidence, with increasing leucocytosis.

II. The favorable moment is the earliest moment at which you can satisfy yourself that the chances are against subsidence of the present attack, and therefore against the opportunity of an interval operation.

I always like the aid of a surgeon in determining this moment, and, not being a surgeon myself, make it a rule to call a surgeon as soon as I see a case of appendicitis, however mild.

Alfred Stengel, Philadelphia, Pa.:

I. The absolute indications for operation in appendicitis are gangrenous necrosis, perforation of the appendix, with or without beginning, local or general peritonitis, local suppurative peritonitis from perforation, or direct extension.

The clinical indications for operation are included in the discussion of the second question.

II. In any case of acute appendicitis in which the sympoms of onset are violently severe and abrupt, in which pronounced rigidity develops, and dullness and tumor are early palpable, in which the temperature is high, or markedly fluctuating, and in which there is decided leucocytosis (15,000 to 20,000), these signs and symptoms are imperative indications for operation at the earliest moment. Subsequently a fluctuating mass or other decided evidences of a collection of pus would be absolute indications for operation, but such indications are rarely presented, and need not be discussed.

In a certain number of cases of appendicitis, which number I believe to be very small, judging from the many cases of mild appendicitis included in my medical experience (but which is said by some operating surgeons to be very large), in this number the symptoms of onset are insignificant, the fever is trifling or wanting, and the general appearance of the patient marked by no signs of gravity, yet a fatal termination may suddenly occur from perforation. There are no indications for operation in such cases, and the physician or surgeon who advises operation in such instances must do so only because he advises operation invariably, in even doubtful cases of appendicitis. We must acknowledge our inability in some cases to recognize appendicitis, and must confess our inability sometimes to determine the exact nature and gravity of a particular case.

I have not attempted to indicate the *only* class of cases in which operation seems advisable, but rather to define the conditions in the very early stages of acute appendicitis which absolutely demand operation. In the later stages of any case of appendicitis, signs of perforation, of localized peritonitis, of intestinal obstruction, and other complicating conditions may be positive indications for operation.

It would require a long and detailed discussion to present one's views on the exact moment when operation becomes necessary, or the exact indications which may demand operation in such varied classes of cases, and

I therefore omit any further reference to the matter, as well as to the question of operation in chronic appendicitis.

W. Gilman Thompson, M.D., New York, N. Y.:

Operation is indicated under the following conditions: 1. In catarrhal cases whenever, after seventy-two hours, the patient shows no improvement, but presents a small pulse of 110-120, slight continued fever (101°-102° F.), abdominal rigidity, and localized tenderness in the right iliac fossa, whether a tumor be discoverable or not. 2. In all cases of perforation and collapse. 3. In all cases of general peritonitis. 4. In all cases of distinct tumor. 5. In very severe acute cases, with vomiting, much fever, and distinct local signs. 6. In all cases of evident general sepsis. 7. In recurrent mild cases after three or four unmistakable attacks. In these cases the operation is performed in the quiescent stage between the attacks.

In other words, the only cases in which it is safe to defer operation are those in which the symptoms are at no time urgent, and in which, after three or four days of rest and fluid diet, the patient gives evidence of improvement and of diminution in intensity of the local signs. In all other cases postponement of operation means the taking of very grave risks of fatal septic peritonitis, or of the rapid development of conditions which will treble the difficulties and dangers of operation when finally performed. In perforative and gangrenous cases an hour's delay of operating may cost the patient his life.

J. C. Wilson, M.D., Philadelphia, Pa.:

I. An appendix that has shown the clinical manifestations of inflammatory reaction to infection should be removed.

In a certain proportion of the cases the acute or subacute symptoms subside without operation. In this case the subsequent conditions are as follows:

(a) Entire recovery (very rare).

(b) Abdominal symptoms, tenderness, and uneasiness in right iliac region, constipation alternating with diarrhea, subsequent attacks (very common).

(c) Comparative freedom from abdominal symptoms, with a more or less remote fulminant outbreak, abscess formation, or fatal peritonitis.

The future course in any given case cannot be predicted. Necrosis, with general infection of the peritoneum, may occur in the course of some hours.

The indications for surgical intervention are, in a primary or recurrent attack, decided constitutional disturbance, elevation of temperature, tenderness in the region of the appendix upon direct pressure, or upon pressure on the opposite side of the abdomen, rigidity of the abdominal muscles. In a certain proportion of the cases, probably limited, the symptoms, after reaching some degree of development, gradually subside under purgation, local applications of ice, and, later, opium or one of its derivatives. If this favorable course could in any given case be foreseen, operation might be safely postponed until a convenient season, or, if the improvement sets in early, operation may be avoided; but each recurrent attack terminating thus favorably is followed by more extensive adhesions.

All things considered, the risk of delay is greater than the risk of operation.

II. My rule in practice is to associate a surgeon with me in the case so soon as the diagnosis is suspected or made, and to defer to his judgment as to the most favorable moment for operative intervention. Subacute or moderately acute symptoms have appeared to me to be indications for prompt operation, especially in recurrent attacks. The danger of necrosis of the appendix, with general septic peritonitis, is to be considered.

Concerning a group of cases coming under observation with signs of recently-developed general peritonitis, much difference of opinion exists. Some of my surgical colleagues believe in deferring operation, holding that more cases terminate fatally under operation than without it. The statistics to which I have had access do not convince me that immediate operation in such cases is not the right procedure.

EOSINATE OF METHYLENE-BLUE AS A BLOOD-STAIN.

By Charles E. Simon, M.D.,
Baltimore, Md.

In 1891 Romanowsky drew attention to the fact that upon the addition of one volume of a concentrated aqueous solution of methylene-blue to two volumes of a 1 per cent. aqueous solution of eosin a precipitate is formed of a new dye, which possesses a special affinity for the nuclear chromatins.

In 1896 Bremer then showed that if a solution of this dye in alcohol of 33 per cent. is further treated with a certain amount of eosin and methylene-blue a neutral reagent is obtained which will color the red corpuscles of normal blood a reddish brown, the blood-plates and the nuclei of the leucocytes blue, the neutrophilic granules violet, and the eosinophilic granules a bright red.

Le Goff, in 1897, further demonstrated that similar results may be obtained with a saturated solution of the precipitated pigment in alcohol of 33 per cent. without the further addition of eosin and methylene-blue. This pigment was prepared for Le Goff at the dye works of Saint Denis.

It is thus clear that three investigators, at least, had not only recognized the existence of this neutral dye, which results from an interaction between eosin and methylene-blue, but had also used it in hematological work previous to the year 1898. It is therefore surprising to read the announcement by Rosin in 1899 that he has discovered a new aniline dye—in fact, a whole group of new dyes—of which he states that they are formed when con-

centrated solutions of acid and alkaline aniline dyes are mixed in such proportions that a neutral, or nearly neutral, reaction is obtained. The eosinate of methylene-blue belongs to this order. All that can be said of Rosin's discovery is that it is a rediscovery of something that has been long and well known, for, aside from the fact that the eosinate of methylene-blue has been used as a differential stain in blood-work long before his first communication to the *Berliner Gesellschaft für Psychiatrie und Nervenkrankheiten* in 1898, every worker in the clinical laboratory is perfectly familiar with the frequent precipitation of particles of this dye when blood preparations are successively stained with eosin and methylene-blue, or when mixtures of the two are used which have not been freshly prepared. Any priority claims by Rosin in this direction must therefore fall to the ground.

Shortly before the appearance of Rosin's paper a further contribution to the subject appeared, in which the writer, Louis Jenner, describes the preparation of the eosinate of methylene-blue, and in which he points out that with a solution of this dye in methyl alcohol it is possible to rapidly and satisfactorily stain blood specimens without previous fixation. This appeared to be a decided advance in laboratory technique and one worthy of careful investigation. With Ehrlich's tri-acid stain, as is well known, fixation of the specimens, either by heat or by immersion in equal parts of absolute alcohol and ether, or by some other method, is necessary, and even then the results are frequently disappointing. During the past few years I have received communications from numerous workers in the clinical laboratory, in which complaint is made that, notwithstanding the preparation of the tri-acid stain according to Ehrlich's directions, the neutrophilic granules either remain unstained or are colored imperfectly. I have carefully investigated this matter and have elsewhere given detailed directions for the preparation of a reliable tri-acid stain. But I must admit that even then specimens may be obtained which are not entirely satisfactory unless heat has been employed for the purpose of fixation. Fixation, however, and especially when we are dealing with the blood of pernicious anemia, leukemia, etc., is a tedious process, and fixation by heat, moreover, requires experience. Jenner's claim, therefore, that with his method previous fixation is unnecessary, certainly merits attention, and during the past year I have thoroughly examined this method. As the result of my experience I can now affirm that it is not only simpler than Ehrlich's procedure, but that it furnished results which, on an average, are as good as the best results that can be obtained with the old method. The information also which is thus furnished is greater, as the basophilic granules of the mast-cells and of the red corpuscles which are undergoing granular degeneration are readily stained. Polychromatophilia is shown to greater perfection,

and any bacteria or malarial organisms that may be present are distinctly brought out. With diabetic blood, moreover, a modified Bremer's reaction is obtained.

The stain is prepared in the following manner: Equal parts of a 1.2 to 1.25 per cent. aqueous solution of eosin and of a 1 per cent. aqueous solution of methylene-blue are mixed in an open basin and allowed to stand for twenty-four hours. The precipitated eosinate of methylene-blue is filtered off and dried at ordinary temperatures. It is then powdered, washed with distilled water, again dried and stored in suitable receptacles. If desired, the substance may be further purified by recrystallization from alcohol, but this is not strictly necessary. The crystals have a greenish luster. They are practically insoluble in cold water, very little soluble in hot water, while in alcohol or in solutions of eosin or methylene-blue they dissolve with comparative ease. For staining purposes I employ a saturated solution of the dye in methyl alcohol, to which I further add about 10 per cent. of glycerine. A solution is thus obtained which does not evaporate so rapidly as the simple alcoholic solution, and is therefore better suited for the purpose of staining specimens on the slide or cover-glass. Previous fixation, as I have already pointed out, is unnecessary. The blood specimens are prepared as usual on cover-glasses, or, what I have come to regard as more convenient and more satisfactory, on slides. When air-dry they are covered with a few drops of the solution, stained for from two to five minutes, then rinsed in water and thoroughly dried by slow evaporation and subsequent mild heating. The various elements of the blood are thus stained as already described. Particularly striking are the neutrophilic leucocytes, where the individual granules are stained a beautiful purple. Polychromatophilic and granular degeneration of the red corpuscles is readily recognized. With diabetic blood a modified Bremer's reaction is obtained, *i. e.*, the red corpuscles are colored a pale green, a yellowish green, or they may remain uncolored altogether. The basophilic leucocytes present a violet granulation, and bacteria and malarial organisms are stained a sky-blue.

In my laboratory I now use this stain almost exclusively in blood-work, and likewise find it most convenient in the study of the various exudates, such as gonorrheal discharge, the sputa, etc. I can recommend it without reserve, and regard its discovery as a decided advance in laboratory technique.

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TWO UNUSUAL CASES OF ANNULAR SYPHILIDES IN NEGROES.

By T. Caspar Gilchrist, M.D.,

Clinical Professor in Dermatology, Johns Hopkins University and the University of Maryland.

THE first case was that of a woman 33 years of age, who came to the Johns Hopkins Dispensary for treatment. She was suffering from an eruption which was chiefly distributed over the face. Other somewhat similar lesions were also found near the axillae

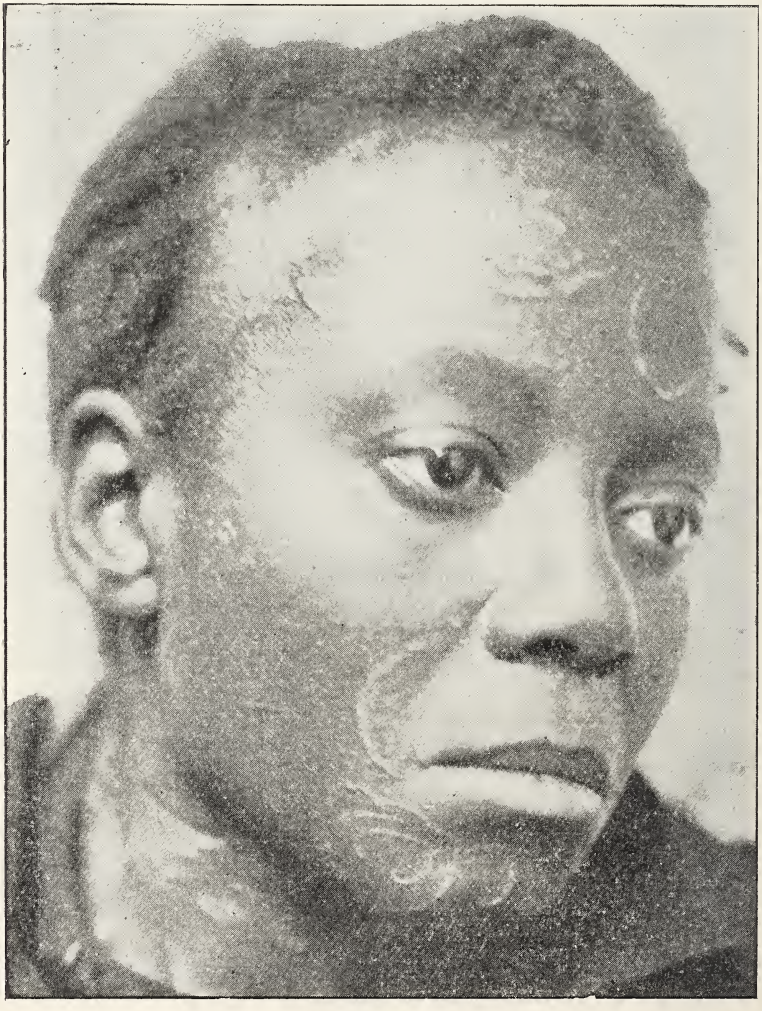

PLATE I.

and on the inner side of the thighs. Numerous condylomata were situated in the region of the perineum and about the genitals. In both axillae were a few scattered mucous patches.

The history of the lesions on the face was as follows: Two

PLATE II.

months before the patient applied for treatment rather large papular lesions had appeared on the chin, forehead, cheeks and neck; the papule began to increase in size very rapidly, and also apparently cleared up in the center as they grew larger. Sometimes neighboring lesions would gradually coalesce, when the interven-

ing line would disappear, and so irregular gyrate figures resulted. This appearance is well seen in Plates I and II, which show both sides of the patient's face. On each cheek near the angles of the mouth are seen what is a very unusual occurrence, three rings, one within another. These are probably due to recurrent lesions arising within the annular patch.

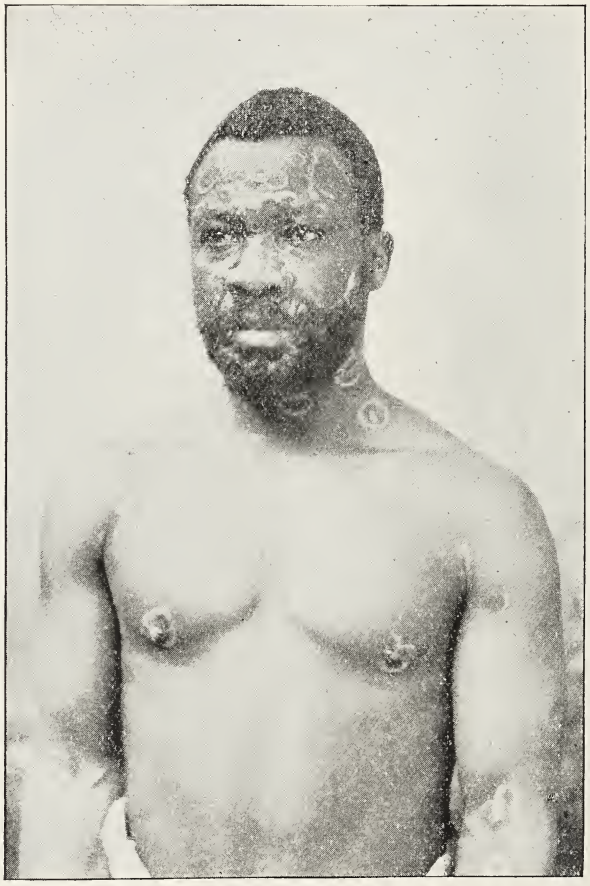

PLATE III.

On examination the well-defined, raised, dull reddish, slightly scaly edge was indurated to the touch, showing that the pathological process had implicated the corium rather deeply, as well as the epidermis. A typical gyrate figure is seen round the left ala of the nose, and a typical annular lesion is situated on the forehead. There were no subjective symptoms. The lymphatic glands were much enlarged. The patient gave a history of a primary lesion (chancre), sore throat, rheumatism and miscarriages.

The eruption disappeared almost entirely after eight weeks' treatment with potassium iodide and bichloride of mercury. With such additional symptoms the diagnosis was perfectly clear.

Case 2 was another very marked example of the annular syphilide in a man who came for treatment at the University of Maryland. Plate III shows the lesions, which are distributed almost over the whole face and neck, as well as on the body, axillae and bends of the elbow. Numerous gyrate forms have resulted from confluence of the annular lesions on the face and neck. On the left side of the neck is one lesion showing rings within rings. There was a definite history of a primary lesion six months previous to seeking advice, and the eruption had been in existence two months.

There was also marked general enlargement of the lymphatic glands and rheumatism. The margins of the patches were quite scaly, and the scales were somewhat adherent. Marked induration was also a feature of these lesions, showing the pathological changes had extended deeply into the corium. A portion of one of the annular patches was excised, and a section showed that the disease had invaded the epidermis and the upper half of the corium. The epidermis was much thickened, especially the horny layer, but in the portion of the lesion corresponding to the center of the ring the epidermis was thinner than normal. Numerous wandering cells, which one could not decide to be polynuclear leucocytes, had invaded the epidermis. The granular layer was also thicker than normal, and many nuclei could still be detected in the horny layer. The pigmentation granules could be traced to the surface.

The upper half of the corium appeared so full of cells that the connective tissue could hardly be discerned. The collections of cells consisted chiefly of plasma and young connective tissue cells, and polynuclear leucocytes were extremely few in number. The blood vessels were slightly dilated. In the deeper portion of the corium there were small collections of plasma and young connective tissue cells round the blood vessels. The appendages of the skin were not specially affected in the diseased process.

Within the last few years cases have been under my observation in which a diagnosis was not quite so easily made as in the two previous cases. In the doubtful instances one has to carefully exclude ringworm and erythema multiforme. In ringworm there is usually a history of only one lesion at the commencement, and as the result of its contagious character other patches arise. Microscopical examination of scrapings from the margin will definitely determine whether the case is one of ringworm by the presence or absence of the ringworm fungus (mycelium and spores). In erythema multiforme there are usually also lesions on the back of the hands, and the margin of the eruption is not raised, firm or indurated as in the annular syphilide. The eruption on the dorsal surface of the hands in erytheme multiforme is more of a macular or slightly maculo-papular variety. Other symptoms of syphilis would also be absent.

This annular lesion of syphilis usually appears within the first year of infection, but may be sometimes delayed as late as the third, fourth and fifth year. In one of my own cases the annular lesion appeared on the chin as late as the tenth year after infection. The patient, a man, consulted me with reference to a semi-annular lesion on the chin. The duration was two weeks. The patch had commenced as a papule, which gradually spread and formed a raised, well-defined, slightly scaly, firm ridge, which was shaped like a half circle. The hair piercing it could be extracted much more easily than normal; so tinea barbae was thought of, although syphilis was not excluded. Many hairs were examined for the ringworm fungus, but no trace of mycelium or spores could be found. After treatment had been given for three weeks on the supposition that the case was one of ringworm, no benefit whatever had resulted. The patient then admitted a previous history of a primary lesion many years before, and under internal specific treatment and with no external application the lesion gradually disappeared entirely.

With reference to this annular form of eruption in syphilitic subjects it appears, as far as my experience extends, to be much more prevalent in the negro race than in the white races.

In the large majority of text-books on dermatology and syphilis practically no description is found of this fairly frequent variety of syphilitic eruption, but Crocker gives a good account of it and Taylor (*Venereal Diseases*) also mentions it. The latter author describes it as a relapse of the erythematous syphilides, and also says it is liable to return. Crocker, on the contrary, places these circinate lesions under the papulo-squamous group, and I agree with him.

Current Literature.

PROGRESS IN PEDIATRICS.

By Thomas R. Brown, M.D.,
Baltimore.

THE PHYSIOLOGY AND PATHOLOGY OF THE BLOOD IN CHILDREN.

Friedjung (*Medicinische Woche*, 1900, Nos. 1 and 2), after discussing the physiology and general characteristics of the blood in normal children and the variations which may occur in percentage of hemoglobin, number of red-blood cells and white-blood cells and specific weight in healthy children, devotes the greater part of his paper to a discussion of the changes in the blood in certain diseases and pathological conditions.

The tables which he gives of these results are very interesting, and in them we find the following details: The child's age, the number of red-blood cells per cubic millimeter, the hemoglobin determination by the von Fleischl instrument, the determination

of the amount of iron by the use of the ferrometer, including the percentage in blood-iron and the calculated amount of hemoglobin, the specific weight and the number of leucocytes, and any remarks concerning the case which might be of interest.

In six cases of diphtheria studied, varying in age from one to eight years, the number of reds varied from 5,420,000 to 6,330,000, the hemoglobin from 55 to 70 per cent. and the number of leucocytes per c. mm. from 11,000 to 16,400 in all but one case, where there were but 6000.

In a child of two years with acute bronchitis the reds were 5,480,000, the hemoglobin 60 per cent. and the whites 12,800, while in two cases of lobar pneumonia of five and nine years of age the reds were 4,760,000 and 4,920,000, the hemoglobin 50 and 78 per cent. and the whites 8800 and 32,000, respectively, the first case being examined during the stage of resolution, the second during the stage of hepatization.

Two cases of serous pleurisy of three and one-half and five years showed a practically normal number of reds, with 60 per cent. of hemoglobin in each. The whites were not counted in the first case, but in the second case they were 8400 after two weeks' illness and 9000 a week later, when the child was convalescing.

Five cases of severe chorea minor in children between eight and one-half and thirteen years showed the reds between 5,000,000 and 6,000,000 in all but one, where they were 4,260,000. The hemoglobin varied between 60 and 75 per cent., and the whites between 6200 and 8600.

A case of acute nephritis of four and one-half years showed 5,300,000 reds, 60 per cent. of hemoglobin and 15,000 whites, while a case of influenza sepsis showed 4,500,000 reds, 50 per cent. of hemoglobin and 12,800 whites.

Of two cases of chlorosis of thirteen and fourteen years one showed 4,380,000 reds, 38 per cent. of hemoglobin and 6400 whites, while the other, in which four counts were made at different times, showed between 2,800,000 and 3,240,000 reds, 20 and 25 per cent. of hemoglobin and between 8000 and 14,000 leucocytes, the latter decreasing in number as the child increased in weight and percentage of hemoglobin.

Six cases of "primary anemia" in children between ten and seventeen months old were studied, but as most of them showed definite signs of rickets, the term "primary" must be taken *cum grano salis.*

The first showed 2,880,000 reds, 30 per cent. of hemoglobin and 13,000 whites; the second, 4,500,000, 35 per cent. and 15,000, respectively; the third, 3,600,000, 15 per cent. and 16,000; the fourth, 3,760,000, 22 per cent. and 9200. In the fifth case three counts were made at intervals of about one month. The reds increased from 2,880,000 to 3,680,000, the hemoglobin from 20 to 30 per cent., while the whites diminished from 54,000 (?) to 7000. In the sixth case there were 1,600,000 reds, 10 per cent. of hemoglobin and 14,000 whites.

These severe anemias of early childhood are of extreme interest because of the fact that they occur just about the time when the child goes from an exclusive or almost exclusive milk diet to a mixed diet, and Friedjung has shown in the early part of his article that at this time there is normally a tendency on the part of the erythrocytes to increase their hemoglobin content.

He thinks that chlorosis occurring about the time of puberty and these severe anemias (occurring at about the time when the character of the diet is completely changed) should perhaps be looked at from a somewhat common point of view as far as their etiology is concerned.

In two cases of malaria the blood examined during the course of the disease showed 4,380,000 and 3,740,000 reds, 55 and 35 per cent. of hemoglobin and 4400 and 5200 leucocytes, respectively, while in a third case, in which the blood was not counted until after the malaria had been entirely cured, there were 5,160,000 reds, 52 per cent. of hemoglobin and 14,000 leucocytes, this being of interest, as it shows the leucopenia during the course of the disease and the slight leucocytosis afterwards.

The other cases in which blood counts were made are not of such interest as those we have mentioned. In two cases of tuberculous meningitis the reds were 6,420,000 and 5,400,000, the hemoglobin 55 and 65 per cent. and the whites 23,000 and 15,000, respectively, while in two cases of acute miliary tuberculosis almost the same blood picture is presented, 5,560,000 and 5,220,000 being the numbers of reds present, 50 and 53 the per cent. of hemoglobin and 21,000 and 14,000 the leucocytes, respectively.

In a case of "caries cruris" the reds were 5,700,000, the hemoglobin 63 per cent., while in a case of chronic peritonitis the reds were 5,000,000, the hemoglobin 60 per cent. and the leucocytes 12,200.

A case of rickets of marked severity following measles, pertussis, pneumonia and eczema in a child one year old showed 3,432,000 reds, 30 per cent. of hemoglobin and 7500 whites, while a less severe case in a child of three showed 5,760,000 reds, 70 per cent. of hemoglobin and 15,500 leucocytes.

A case of recurrent endocarditis showed on the first count 6,040,000 reds and 37 per cent. of hemoglobin, while in the second count, made one month later at the time of a recurrence, which proved fatal, the reds were 4,560,000 and the hemoglobin 40 per cent. The last two cases given are cases of catarrhal jaundice, in one of which the first count showed 4,980,000 reds and 77 per cent. of hemoglobin; the second, made eight days later, when the child had improved, 3,900,000 and 62 per cent. In the second case the reds were 4,840,000 and the hemoglobin 67 per cent.

We have given somewhat in detail the results obtained by Friedjung, as the blood in childhood has not been studied with the care that has been given to its changes under normal and pathological conditions in later life, and a communication of this kind is of great value in furnishing careful counts made in a variety of conditions.

THE COLON BACILLI OF THE STOOLS OF SUCKLINGS.

H. L. Smith (*Cent. f Bakteriologie u Infektions Krankheiten, I. Abtheilung*, XXV, 1899, No. 20) gives the results of his experiments on the varieties of colon bacilli found in the stools of milk-fed infants, carried on by him in Escherich's laboratory.

Escherich, since his discovery of the colon bacillus, has been of the opinion that there are many definite and distinct groups of this micro-organism, and, on the other hand, groups more or less related.

His opponents have been many, while among his supporters was Booker, who, after careful obcervations of cultural and toxic differences, described several varieties. Smith, while working in Professor Escherich's laboratory at Graz, isolated from a stool of an infant suffering with colitis two groups of colon bacilli. Group I was identified as a normal colon bacillus; Group II closely simulated the typhoid bacillus in its behavior upon the ordinary culture media, and gave a strong Gruber-Widal reaction in dilution of 1-200 in the patient's serum. A guinea-pig was then immunized with a bacillus from Group II. The infecting bacillus and all of this group gave like positive agglutinative results, while all bacilli from Group I reacted negatively. Typhoid bacilli did not agglutinate in the serum of the patient nor in that of the guinea-pig. Professor Escherich advised further experiments with colon bacilli from normal stools, and the following results were obtained:

Normal stools were obtained at intervals of several days from three healthy infants, all nourished by the same wet-nurse. It was found that all bacilli from stools 1, 2 and 3 from infant A agglutinated strongly in dilutions of 1-50 with the serum of a guinea-pig immunized with one bacillus from stool 1, and that bacilli from the stools of infants B and C were negative in this serum in dilutions of 1-10.

It was further proven that from the stools of artificially-fed infants and adults and from pathological stools more than one group of colon bacilli could always be isolated. A systematic cultivation of each micro-organism was made upon the various culture media, and in every instance the indol and fermentation tests were employed.

The bacilli in the feces were stained by Escherich's method, and it is interesting to note that in the normal stools of normally-fed infants they stained uniformly blue, whereas in the stools of adults, besides the blue-staining bacilli, bacilli staining red were also found.

The results of these experiments of Smith with the colon bacilli thus seem to show beyond doubt, by means of the Gruber-Widal reaction, that there are distinct groups of these bacilli, and by the same means he has been able to trace a relationship between bacilli from different stools, if it should exist.

THE TREATMENT OF INTUSSUSCEPTION.

Kammerer (*Archives of Pediatrics*, February, 1900, Vol. XVII, No. 2, p. 93) and Gibson (*Ibid.*, p. 99) discuss the subject of in-

tussusception from the only justifiable point of view—the surgical.

The former, after calling attention to the uselessness of many of the methods of manipulation in vogue, states that the method of injection of water into the rectum has still many advocates, and is sometimes followed by success.

For the application of forcible enemata the following rules can be laid down:

"In acute cases an attempt at reduction should only be made very early in the case, and once only. This attempt should always be made under complete anesthesia with relaxed abdominal walls.

"Hot water should be employed in preference to ice water, although the latter is said to have effected reduction when the former failed. In very acute cases the method should not be employed.

"After one failure laparotomy is indicated. When laparotomy has been determined upon in the treatment of intussusception the paramount interest to the surgeon relates to the reducibility of the tumor. When the latter has become irreducible important changes in the intestinal wall will usually have occurred.

"The mortality in reducible cases has been shown to be less than half that in irreducible cases. The causes of the higher rate of mortality in the last instance are generally the septic condition of the intussusception and the necessity of extended surgical interference."

Gibson limits his remark to the discussion of the influence of the duration of the obstruction on the prognosis and results of operation. According to his view, the prognosis depends entirely on the promptness of relief. He has collected from the literature 187 cases operated upon in support of this proposition, which, on the face of it, needs no further proof.

Of the 187 cases 126 were reducible, and in these the mortality was 36 per cent.; fourteen were irreducible, with a mortality of 54 per cent.; twenty-three were gangrenous, with a mortality of 95 per cent., and twenty-four "irreducible or gangrenous," with a mortality of 75 per cent.

Of especial interest is the marked diminution in the percentage of reducible cases with every day's delay in operating, as shown by these same statistics. Thus, on the first day there were thirty-five operations, with a mortality of 37 per cent., and the percentage of reducible cases was 94; on the second day thirty-six operations took place, with a mortality of 39 per cent., and 83 per cent. of the cases were reducible; on the third day, of thirty-three cases 61 per cent. were reducible and the mortality was 61 per cent., while on the fourth day, of fifteen cases 67 per cent. died and 40 per cent. of the cases were reducible; the fifth and sixth days show, respectively, a mortality of 73 and 75 per cent.

Thus, good results depend entirely upon reducibility, and the chance of finding reducibility diminishes definitely with delay in operating.

THE CLINICAL SOCIETY OF MARYLAND.

MEETING HELD FEBRUARY 16, 1900.

The meeting was called to order by the president, Dr. James M. Craighill in the chair.

TUBAL PREGNANCY.

Dr. T. S. Cullen: Fortunately the general practitioners are pretty keen on the diagnosis of pelvic tumors now, and we receive cases of tubal pregnancy much earlier than formerly, so that an operation can often be performed before rupture occurs.

Case 1. A young German woman had missed a period for eighteen days, and then had quite a profuse hemorrhage, which continued for two or three weeks. Her doctor thought there must have been some retention of after-birth, and curetted, but obtained nothing. In a few days he noticed some enlargement on the left side, and suspected a tubal pregnancy. Suddenly one evening rupture occurred, the pulse ran up to 160, and he thought the patient would hardly live through the night. I was telegraphed for, and went up the next morning. By this time the pulse had become slower, but there was marked abdominal distension. We could feel through the abdominal wall numerous clots that would break up under the finger. It was considered advisable to open the abdomen, and upon doing so we found three or four liters of free blood and numerous clots, and made sure of the diagnosis of tubal pregnancy. The abdominal cavity was cleansed out as quickly as possible, using five or six liters of normal salt solution, and it was found that the pregnancy was in the right tube. There were so many adhesions that we thought it best to amputate the tube, which was done, and the abdomen closed in the usual manner, the woman returning to work again within six weeks.

Case 2. This patient was a woman of thirty-eight years of age, upon whom I had operated in March last. On December 4 a free hemorrhage begun and continued until the time I saw her, about two weeks ago. Her physician stated that for the last five or six days there had been excruciating pain in the left side, and extreme tenderness, so that we could not make an examination without anesthesia. A distinct mass could be felt on the left side, about the size of an orange. The possibility of its being a pus tube or some inflammatory exudate was considered, but she had had no temperature whatever, and there seemed to be no possibility of infection. The patient was operated on last Saturday, and on opening the abdomen we found at first some dark, bloody fluid, and from the left side we removed this mass (exhibiting specimen). It was the enlarged left tube, which had as yet not ruptured. The fimbriae were free, and there were no adhesions, but there had been continual weeping from this fimbriated extremity. There were few clots.

Case 3. This patient came to the hospital at Cambridge, Md., with a pulse of 160, and the statement that she had been complaining for some weeks. The temperature had not been elevated at any time. It was not considered advisable to attempt an abdominal operation, and so the patient was placed in a perineal position, and incision made in the usual way. Im-

mediately a large number of clots came from the vaginal outlet. We brought down the tube on the right side, and found it normal, but on examining the left side, found a tubal pregnancy, and amputated the tube at the uterine cornu. The pelvis was then washed out thoroughly, and a small drain placed in it. The patient promptly recovered, but if we had done an abdominal operation in this case there is little doubt that there would have been an unfavorable result.

I should like to report two other cases, in order to compare with these:

Case 4. Patient thirty-three years of age; married one year; had no miscarriage, but missed a period for two weeks, when there followed a bloody discharge. Examination of the cervix showed it to be hard and about half as large again as normal, with a mass on one side of it. After watching her for several days, I curetted the uterus. Nothing resulted from this, but two days after, to my surprise, she complained of severe cramps, and on examination I found a foot presenting, and in a short time a macerated fetus appeared. I had thought in this case that the diagnosis of tubal pregnancy was positive.

Case 5. This patient I saw in Laurel about four weeks ago. She had been regular up to six weeks previous, when she missed her period, and, after two weeks' delay, a bloody discharge appeared. The cervix was very hard, not very much enlarged, and on the left side there was a mass 12 cm. in diameter. She was advised to come to the hospital as soon as possible. Two days later her temperature reached 104°, and her pulse 140. There was no history that would lead to positive diagnosis of tubal pregnancy, but I told her physician that I suspected it. In a few days she was admitted to the hospital, and on opening the abdomen the intestines were found glued together by fibrin. On the left side of the uterus there was a very large mass, and on making gentle pressure about two-thirds of a liter of dark blood clots came away. The tube was filled with pus. We concluded at the time of operation that there was a tubal pregnancy, but on making a histological examination of the clots we could find no evidence of decidua or placental villi. As a matter of fact, it was not a tubal pregnancy, but an acute peritonitis resulting from a pus tube.

These two cases show how you may make mistakes in obscure cases.

The exact cause of the prolonged hemorrhage in tubal pregnancy is a matter of some interest. On examining the mucosa of the uterus in the early months of tubal pregnancy you find typical decidua forming, and it is from that the continual bloody discharge arises. In addition to this, there is a possibility of some fluid trickling down into the uterus from the tube. The gradual distension of the tube produces the pain, and, of course, the rupture.

The best method of operating in the majority of cases is, I think, the abdominal route, because you can then see just what you are doing. In cases like the one described above, where abdominal operation is out of the question, you must go in through the vagina. By this means you do not have the same amount of shock, and are sometimes able to bring the tube down and amputate. If you cannot amputate at the time, you may apply artery forceps and leave them, but, of course, you must be sure of what you are dealing with, for it is possible to pull down and catch a loop of intestines.

TREATMENT OF ANEURISM.

Dr. J. M. T. Finney reported the experimental work of Dr. Hunner of the Johns Hopkins Hospital in endeavoring to determine the kind of wire most suitable for operations upon aneurisms, and illustrated the method of using the needle, and the way in which the wire coils in the sac. He followed this with a report of some cases operated upon, and a consideration of the results obtained by this operation as compared with other methods of treatment.

Dr. Jacobs: Dr. Finney has referred to Dr. Keene's case of ligation of the aorta, and I would like to say that in a note received from Dr. Keene a day or two ago he told me that this patient only lived forty-eight hours. He intends to report the case later.

I want to say just a word about the gelatine treatment. The one case that Dr. Finney referred to has really, I think, been benefited very much. It was a case of abdominal aneurism, with most extreme discomfort, the pain preventing his lying in any position except on one side, and doubled up like a coiled snake. After a number of injections of gelatine his pain perceptibly decreased, and he now feels that he is very much improved. There is no question about the diminution of the degree of pulsation as felt both in front and behind. I think Dr. Futcher sums it up very satisfactorily in a recent article when he says it is a method deserving of thorough trial.

The specimen of Dr. Halsted's case, which I had the pleasure of seeing, shows how the sac wall was thickened by the clot, and is a very satisfactory illustration of what goes on in the sac. The artery was apparently trebled in thickness, and as the sac was cut through by the scissors, the ends of the wire were seen buried in the clot, often a half-inch below the surface of the sac wall.

I would like to ask Dr. Finney just what part the electricity plays in the coagulation, and whether it is of any real advantage beyond causing the corroding of the wire.

Dr. Finney: The thickening of the sac wall which Dr. Jacobs refers to is also beautifully shown in this specimen, where the sacular aneurism was entirely obliterated, but the fusiform aneurism was not benefited, and, in fact, if it had filled with clot the man would have died sooner than he did.

As to the value of electrolysis, I omitted to read that part of my paper for want of time. It formed a part of Dr. Hunner's experiments, and he was able to show the difference between the effects of low and high currents. With no electricity no fibrin was formed at all, so the electricity has something to do with its formation. With the slow current, fibrin would in all probability form in an aneurismal sac, but in the normal healthy dog no fibrin was formed by it.

As to the statistics, of course these five cases of our own were certainly all hopeless ones, so far as we could tell, and so also was the one of Dr. Stewart's that I saw. When you think that 20 per cent. of these were cured, and over 35 per cent. were benefited materially, it does seem that there is something in the method, and that it is worthy of trial.

Dr. S. P. Latane: "A Case of Hemochromatosis, with Chronic Nephritis" (to appear later).

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD FEBRUARY 19, 1900.

THE meeting was called to order by the president, Dr. Thomas.

Dr. Ewing of Cornell University was present by invitation to address the society on "A Form of Conjugation of the Malarial Parasite."

Dr. Ewing said that in four cases of tertian infection he had encountered appearances in the blood which seemed to admit of no other explanation than that of conjugation of the malarial parasites. The blood in these cases showed a large number of young rings and a large number of half-grown and full-grown forms. A great many cells showed double infection, with young rings. In many instances these rings were entirely separate, each exhibiting a single large granule of chromatin. Many cells, however, contained two rings, which were clearly fused together along one segment of the ring, and two large chromatin granules were then invariably found at different points in the rings. The fused parasites usually differed in appearance. One was a large, delicate ring, with a thin bow and chromatin granule of moderate size, while the other was a coarser body, with thickened bow, enclosing little or no hemoglobin, and exhibiting a large chromatin granule.

Among the single rings these two forms of young parasites were often distinguished, but no single rings could be found containing two equally large chromatin granules, while every red cell that exhibited two large and equal chromatin granules contained also two distinct rings. It appeared, therefore, that the bodies of many parasites had become fused together, while their nuclei remained separate. On examining the parasites in later stages of development most of them were found to have lost the ring form, and to have spread out into a large number of threads with nodal thickenings, variously curled in the red cell. In many cells the masses of chromatin lay side by side, united by a little achromatic substance, while later some parasites were found in which two groups of rather large chromatin granules laid in immediate apposition, surrounded by achromatic substance.

Dr. Welch asked whether the phenomenon described was to be looked upon as an actual conjugation essential to the life history of the parasite, or whether it was a mere coalescence of cells as an accidental occurrence.

Dr. Ewing said that he was inclined to think this process was not of vital significance in the sense applied to lower animals, where conjugation is a necessary preliminary to sporulation.

Dr. Thayer exhibited a 14-year-old girl with congenital heart disease. The grandmother of the child stated that she had always been a "blue baby," and had never been able to take part in the active sports of childhood. Any exertion or excitement affects her markedly now. The physical signs were those ordinarily attending an opening in the membranous

portion of the septum ventriculorum. In addition to this congenital defect, the girl was suffering at the time from acute endocarditis.

MEETING HELD MARCH 5, 1900.

In the absence of the president, the meeting was called to order by Dr. Hurd.

Prof. W. K. Brooks of the biological department addressed the society on "The Inheritance of Deafness."

Dr. Brooks referred to the work of Professor Graham-Bell, calling attention to the fact that the invention of the telephone was merely an episode in his life, and by no means his most important scientific work. The real work in which he has been most interested is the improvement of the condition of the deaf, and he has devised a system of genealogical algebra in which the most complex human relationships can be treated and expressed in formula. Professor Bell noticed some years ago that deaf people marry much more frequently in this country than they do abroad, that these marriages were increasing very rapidly, and were accompanied by a very rapid increase in the number of deaf, the increase being more rapid than the increase of population at large. He was inclined to attribute this, first, to the easier conditions of life in this country, and, secondly, to the system of education, whereby all the children of a community are brought together, and the deaf children, through sympathy, and through the learning of a sign language, tend to separate themselves from the rest of the community. He therefore advocated the abandonment of the old sign language, and instead, the teaching of articulate speech to deaf children. This method of teaching has been steadily gaining favor.

Professor Fay of the Volta Bureau for the Amelioration of the Condition of the Deaf, which was endowed by Professor Bell, has just published a volume containing a statistical study of 5000 marriages among deaf people, in which 8000 deaf persons were concerned. One of the most interesting results of his study is that the influences which cause deaf people to marry deaf people are shown to be more deeply seated than Professor Bell had supposed. It appears that about 70 per cent. of deaf persons marry deaf persons, whether they have been educated by speech or by sign language, so that there must be some other psycological influence at work.

Professor Fay's study shows, in the first place, that deaf people are very much more likely to have deaf children than are hearing people, although they are much less likely to have deaf children than hearing children. Deaf people who marry must expect, as an average, to have one deaf child if they have eleven children, so that there are ten chances of a hearing child against one of a deaf one. Normally-hearing people need expect only one deaf child in 10,000 births. Secondly, the liability to deaf children is not equally great with all deaf persons. The character of the parental deafness has a great deal to do with it, some deaf persons who have married deaf persons having large families, with no deaf children, while others may have all deaf children.

Deaf persons are popularly divided into the congenitally deaf and the adventitiously deaf, but it is extremely difficult to draw an accurate line

between the two. Transmission of deafness is much more likely in the first than in the second group.

Professor Fay has divided 5000 marriages into two groups, one including couples known to have deaf relatives, and the other persons having no family history of deafness. Here the result is remarkable indeed, for deaf persons who have deaf relatives will bear nearly 40 per cent. of deaf children, while deaf persons without deaf relatives will have only 1½ per cent. of deaf children. A careful study of the whole question shows that deaf relatives are the index of danger; that deaf persons without deaf relatives may marry with but little more likelihood of propagating deaf children than ordinary people; that neither deaf persons nor hearing persons having deaf relatives should be mated, and that the intermarriage of blood relations who have deaf relatives, whether they themselves be deaf or not, is almost sure to produce deaf children.

Dr. W. T. Watson exhibited a three-months-old child with a caudal appendage. The tail consisted of two segments, a long, thick one springing from the body, and a distal segment, which was short, thin and fibrous. When the child was three weeks old the tail was one and three-quarters inches long. At the age of three months it was two and one-half inches long. Apparently it has no connection with the coccyx, and seemed to contain no bone or cartilaginous tissue, though it was well supplied with muscular tissue, and to some extent served to express its emotions. When crying the tail would shrink up to a considerable extent, and when in a good humor it would curl up over the back. Dr. Watson stated that he intended to amputate the tail in a few days, and Dr. Harrison would study it anatomically.

Prof. W. K. Brooks being asked for his opinion of the case, stated that it was a custom to call such abnormalities reversions, but it seemed to him very doubtful whether they could be regarded as anything like harking back to an ancestral type. Man, like all mammals, has a well-developed caudal region in the embryo, but normally the tail stops growing at a very early stage, and forms the coccyx. He believed that in these cases this cessation of growth did not occur at the usual period, and there was simply a persistence of the normal embryonic condition—merely a form of retarded development.

Dr. Osler exhibited pathological specimens from a case of congenital cystic kidneys. The patient, a young woman, was exhibited before the society a year ago with large bilateral renal tumors. At that time the diagnosis was made upon the history of her passing large quantities of urine of low specific gravity, of several attacks of hematuria, and the existence of the tumors associated with hypertrophy of the left ventricle, and sclerosis of the arteries. The patient has lived in comparative comfort, following her ordinary occupation as a seamstress, until her death from a streptococcus laryngitis.

Dr. Osler exhibited the specimens obtained at the autopsy. The left kidney was of enormous size, and made up of a conglomeration of cysts filled with a brownish fluid. The right kidney, somewhat smaller, had been incised to show the size and nature of the cysts. H. O. R.

Book Reviews.

A Text-Book of Diseases of Women. By Charles B. Penrose, M.D., Ph.D., Professor of Gynecology in the University of Pennsylvania; Surgeon to the Gynecean Hospital, Philadelphia. Octavo; pp. 529, handsomely illustrated. Cloth, $3.50 net. Second edition, revised. Philadelphia: W. B. Saunders.

While we do not wish to say anything in condemnation of the present volume, it is impossible to compare it with some of the similar works which have recently been published without noticing that in many respects it is inferior to them. The author states in his preface that the book is written for "the medical student," and for that reason he has in most instances recommended "but one plan of treatment for each disease," and has "omitted all facts of anatomy, physiology and pathology which may be found in general text-books upon these subjects." Now, is this a good plan? After three years' training in the minor branches of medicine, is not the mind of the student so prepared by the time he reaches gynecology that he demands a fuller consideration of the history and literature of the subject than is given in this work?

The general plan of the work is that which is found in most text-books on gynecology, and need not be spoken of here.

The illustrations are wood-cuts, reproduced photographs, and a number of surgical drawings by Margaretta Washington. These last come nearer to perfection than any of the others, but still leave something to be desired.

G. W. D.

The American Year-Book of Medicine and Surgery. A Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs, and text-books of the leading American and foreign authors and investigators, collected and arranged with critical editorial comments by Samuel W. Abbott, Archibald Church, Louis A. Duhring, D. L. Edsall, Alfred Hand, Milton B. Hartzell, Reid Hunt, Wyatt Johnston, Walter Jones, David Riesman, Louis Starr, Alfred Stengel, A. A. Stevens, G. N. Stewart, and Reynold W. Wilcox. Under the general editorial charge of George M. Gould. Philadelphia: W. B. Saunders. 1900.

Medicine. This volume, of 586 pages, contains ten chapters, comprising, in condensed form, a comprehensive account of all the important contributions to medical science during 1898. Nearly half the book is on Internal Medicine, and is by Alfred Stengel.

There are also chapters on Pediatrics, Pathology, Nervous and Mental Diseases, Cutaneous Medicine and Syphilis, Materia Medica, Therapeutics and Pharmacology, Physiology, Legal Medicine, Public Hygiene and Preventive Medicine, and Physiologic Chemistry.

The book is fully equal to its predecessors, is very well, though not copiously, illustrated, and is altogether one of the best and most complete of its class.

F.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, APRIL, 1900.

A SCHOOL EPIDEMIC OF TYPHOID FEVER.

AMONG the most interesting epidemics of typhoid fever in 1899 was that at the State Normal and Industrial College at Greensboro, N. C., described by W. P. Beall in the *Carolina Medical Journal* for February, 1900. Between the 17th and 30th of October, 1899, some thirty students were attacked with what was pronounced remittent fever. The onset was marked by chills, followed by high temperature, with considerable remissions, or, in a few instances, complete intermissions. They were treated with quinine, and about four-fifths of the cases recovered in from five to fifteen days. Eight times in ten blood examinations among these earlier cases the resident physician, Dr. Gove, found the malarial organism. Between the 8th and 12th of November a fresh outbreak occurred, and there were on the latter date sixty-five students in all stages of fever, from invasion to convalescence. At the beginning of the epidemic the chief drinking well had been closed, and on the 16th of November the other two wells were closed, and only boiled water was used thereafter.

On this day (November 16) rose spots were observed for the first time in three cases, a diagnosis of typhoid fever was made, and all the students well enough to travel were sent home, leaving forty-eight in the college. By the 24th rose spots had appeared in all but four cases, of which number three were believed not to have typhoid.

Among the forty-four cases recognized as typhoid fever, eleven died—one of hyperpyrexia, five from the toxemia, one in the course of a relapse, one from gangrene due to femoral thrombosis, and four from intestinal hemorrhage. This last complication appeared in sixteen, or 36.4 per cent. of cases. Constipation was present in nearly all the cases, and the treatment included calomel and the intestinal antiseptics. Other complications noted were periostitis in one case, gangrenous dermatitis in one case, and multiple cellular abscess in several cases. Besides the eleven deaths at the college, three students died at their homes.

While great interest surrounds these forty-four cases of undoubted typhoid fever, the larger group of cases, believed not to have been typhoid, is even more interesting. Of these, seventy-one were diagnosed as malaria, recovery occurring in from four to sixteen days in all save one, who, having chronic heart trouble, succumbed to the malaria.

Allusion is made to the opinion expressed by certain physicians, who did not see the cases, that all were typhoid fever. Such an opinion is not warranted by either the data or the probabilities. On the other hand, to

believe that an epidemic of seventy-one cases of malaria occurred in a small college community in the last six weeks of autumn puts a great strain upon accepted views concerning that infection. Malaria was undoubtedly present, and typhoid also, but all the cases of illness were not of necessity due to one or the other of these infections. Proof of malaria was made out in but a few instances. The season was against the theory of malaria, only young persons were attacked, and no mention is made of known and only means of conveying malaria. In all the cases lasting beyond a week, under antimalarial treatment, the probabilities were in favor of typhoid as against malaria. The season was favorable to typhoid. The age period was pre-eminently that of typhoid. A new and safe water supply was introduced on November 16, and no new case seems to have appeared after December 5, or a single period of incubation for typhoid fever. Meanwhile *anopheles*, if on the scene, had gone into winter quarters, while typhoid bacillus was still active.

Excluding, say, ten cases of malaria and forty-four cases of typhoid, it seems reasonable to divide the remaining sixty-one cases between typhoid fever and some unknown but water-borne infection. The whole narrative strongly suggests the infection of a large number of people, at about the same time, through a single vehicle charged with more than one pathogenic agent.

This view may be illustrated by a story told by Dr. Stokes and the present writer in the *Philadelphia Medical Journal* in 1898. The pump supplying water to a community of 400 persons was disabled on the 3d of July, 1898. A tank, holding barely one day's supply, was filled with water from another well, long disused, and all of this alternative supply was consumed on the national holiday. On the 5th of July the original source was restored to service. Six days later sickness appeared, twenty-five persons being attacked with chills, fever,, diarrhea, and, in a few instances, delirium and bloody stools, with considerable emaciation. In three to seven days all these people were convalescent. None were treated for malaria. On July 27 two young ladies were found sick with typhoid fever, and on August 1 a third case was recognized. Bacteriological studies showed that the regular water supply was a good drinking water, while that used on the Fourth of July contained 4100 bacteria per cubic centimeter, and the colon bacillus was present. Here, in the same water, were two distinct morbific agents, showing different incubation periods.

A similar event may have happened at Greensboro through the sudden contamination of the drinking water. There were apparently two outbreaks of disease, the first one possibly not typhoid fever, and probably not malaria, the second and serious outbreak including a great majority of cases of well-defined typhoid fever. The diagnosis seems to have been obscured chiefly by the milder cases, which were regarded as remittent fever. The vague term, remittent fever, enjoys a wide vogue throughout the Middle and Southern Atlantic States, and probably conceals more typhoid fever than is hidden under all other misnomers. It is disappearing in exact proportion as blood examinations come more and more into common use in the diagnosis of fevers, and 80 per cent. or more of the "remittent fevers" may now, in Maryland at least, be recognized as typhoid by definite and approved tests.

SMALLPOX IN THE UNITED STATES.

THE epidemic wave of smallpox which is passing over this country does not diminish in volume as it moves westward. Among the States contiguous to Maryland only West Virginia has suffered heavily. In that State there are at present centers of infection in nine counties. Among the sufferers was one physician, who, in a considerable city, was the only unvaccinated member of the medical profession. In Virginia, while no serious epidemic has occurred, the incidence of the disease upon the white citizens has been much greater than in the epidemic of last year.

Georgia has no State board of health, and this fact in part explains, perhaps, the numerous untraceable outbreaks in Florida and South Carolina. The United States Marine Hospital Service reports smallpox in eleven counties of Georgia. Louisiana has the disease in eighteen counties. Tennessee has five infected towns. Kentucky has more or less serious outbreaks in thirty-five counties, and the local boards of health of twelve counties have resigned, abandoning the fight for lack of funds. The State board of health of Mississippi has informed the legislature that smallpox prevails throughout the State. In Indiana the disease is prevalent in eight counties. In Oklahoma a number of postoffices have been closed on account of smallpox.

The finest story of all comes from Oregon, where the medical men are wrangling over the diagnosis. Some smears of pus have been sent to Chicago for examination in the laboratory of *Alkaloidal Clinic*. The ground of dispute is now not so much the clinical problem as the report upon the smears, and each side is now trying to wrest the biological scriptures to the other's damnation.

While the type of the disease is in most places as mild as it was a year ago, Louisiana has reported a fatality of 25 per cent. In Mississippi whole families have been obliterated, and the fatality is in general said to have been about 75 per cent.

AN EXCURSION OF NORMAL P. APPENDECTOMY.

THE *St. Louis Medical Review* (March 17) sent out Normal Prophylactic Appendectomy with letters of introduction to "a majority of the best surgeons of this country." Among eighty-nine surgeons, one, a Kentuckian, bowed down to the man of straw, while another, a Cincinnati surgeon, made thirteen rachitic genuflexions. Half a dozen asked it to call again when the appendices were out, and the rest more or less respectfully kicked it. Two spoke Greek to it, and Dr. Howard Kelly, always polite, spoke of speaking Greek, but didn't. Many called it hard names, as they should not have done, seeing that it had good clothes and a respectable introduction. The story of its adventures fills fourteen pages, though the country was saved before the St. Louis surgeons were through with it. A surgeon in Nebraska said to it, "Let us have peace," and it replied, "Baldheaded colons are the price of epityphlitic peace." Over its pathetic remains the editor pronounced a noble threnody.

This important question being now settled, we escape the necessity of further inquiry as to how many icemen would, if N. P. Appendectomy held the field, be reduced to the practice of surgery for a livelihood.

Medical Items.

The American Proctological Society will meet in Washington on May 2 and 3.

And now the University of Edinburgh wants Dr. Wm. Osler for the chair of medicine.

The American Dermatological Association will meet in Washington, at the Hotel Gordon, on May 1, 2 and 3.

Among the Frenchmen recently made Chevaliers of the Legion of Honor were Drs. Marmorek, Barr and de Moteues.

Dr. Lewellys F. Barker of Johns Hopkins has been called to the chair of pathology in Rush Medical College, Chicago.

Dr. Leroy C. Towles of Accokeek died on March 7, aged forty-four years. He was graduated at the University of Maryland in 1877.

Cornell has received $80,000 from an anonymous benefactor for the purpose of erecting a laboratory of anatomy and physiology.

Dr. Thomas B. Futcher, associate in medicine, Johns Hopkins Medical School, has resigned and will shortly commence practice in Toronto.

Dr. J. J. Culler of Jefferson, Frederick county, died on Thursday, March 15, of heart trouble. Dr. Culler graduated at the University of Maryland in 1848.

The Massachusetts legislature has passed a bill authorizing the establishment of free public baths and gymnasiums in the cities, towns and villages of the State.

The Massachusetts General Hospital is said to have received a gift of $75,000 conditioned upon the raising of the same additional sum, the whole $150,000 to be used for a new out-patient building.

The Mississippi legislature has passed a law imposing a special tax upon physicians. In towns of 3000 or more inhabitants they are to pay $10 annually; in towns of less than 3000 inhabitants $5, and in the country $2.50.

The two candidates for mayor of Hagerstown were Dr. E. M. Schindel, democrat, and Dr. J. E. Pitznogle, republican, both graduates of the University of Maryland. School of Medicine. Dr. Schindel was elected.

The town of Winchester, Va., will try to abate the pest of mosquitoes by applying coal oil to all the cesspools. An ordinance requiring all householders to treat their cesspools at definite intervals will be enforced by the police.

Dr. Stephen Purnell Dennis of Salisbury died of pneumonia on March 15, aged seventy-three years. Dr. Dennis graduated at the Pennsylvania Medical College in 1856, and was one of the best-known physicians on the Eastern Shore.

Dr. Rufus W. Dashiell died at Princess Anne on March 28. Dr. Dashiell was graduated at the University of Maryland in 1872, and was forty-nine years of age. He was appointed a member of the Lunacy Commission by Governor Brown in 1893.

According to the *Philadelphia Medical Journal*, a citizen of Williamsburg, who engaged in a street fight and received a stab wound in the abdomen, was found, on removal to the hospital, to have appendicitis, and the wound offered direct and easy access to the appendix, which was removed. The patient is now in a benevolent frame of mind towards his assailant.

Four students of the Sheffield Scientific School at Yale have been ill with smallpox. Nine students of the Detroit College of Medicine are also said to be in the pesthouse with smallpox, and two were sick in their homes. These last eleven are said to have been infected while dissecting the body of a negro shipped from a Southern State.

To show how half-enlightened fear may outrun reason and common sense, attention is directed to the action of certain citizens of Philadelphia, who have entered a vigorous but absurd protest against the use of the corner of Lehigh avenue and Thirteenth street as a site for the Rush Hospital for consumptives. Most ridiculous is the fact that the protest is said to come from the churches in that vicinity.

Dr. Wm. MacNeill Whistler died in London on February 27, aged sixty-three years. Dr. Whistler graduated at the University of Pennsylvania in 1860, and at the outbreak of the Civil War entered the medical service of the Confederacy. At the close of the war he went to London, where he took the degrees of M.R.C.S. and M.R.C.P., and established himself as a specialist in laryngology. He was one of the founders of the London Throat Hospital. Whistler, the eminent and eccentric painter, is his brother.

The medical inspectors of the immigration bureau at the port of New York found a case of leprosy in a well-dressed young man just arrived from Bridgetown, Barbadoes. He was well provided with money, and was bound for Canada, having been told by the physicians at his home in the West Indies that his skin affection would be cured by living in a northern climate. A Christian Science "healer" has begged to be allowed to treat him, asserting that she can cure him. Being refused permission to make the attempt, she says she will cure him nevertheless by "absent treatment."

The first International Congress of Professional Medicine and Medical Deontology will be held in Paris from the 23d to 28th of July. The committee announces a reduction of rates of 50 per cent. on the French railroads and 30 per cent. by the Compagnie Transatlantique to all members of the Congress whose applications are on file before June 20. The transportation certificates will be issued at the same time with membership cards, and may be obtained of any member of the American committee. The fees are fifteen francs for *membres titulaires*, and ten francs for *membres participants*. Transportation tickets are good for one month. Medical students can obtain the traveling certificates by becoming *membres participants*, and the reduced rates are also available for the wives or other companions of members of the Congress on the same terms. This Congress will consider those relations of the medical man which are extra-scientific.

In a recent London divorce case both petitioner and corespondent were medical men. Dr. Crooks, the petitioner, sent his wife to his former preceptor, Dr. Horrocks of Guy's Hospital, on account of barrenness and dyspareunia, which had persisted during five years of married life. She recovered, became pregnant, and Dr. Horrocks was godfather to the child. A year later, her health failing, she consulted a "palmist," who told her that she had been unfaithful to her husband, that she would figure in a scandal, be divorced, and have another child, not by her husband. This made a deep impression upon Mrs. Crooks, and some months later she stated to her husband that she had committed adultery with Dr. Horrocks "heaps of times." Later she made the same statement in writing. Before the trial Dr. Savage was called to see Mrs. Crooks, and became convinced that her "confession" was the result of a hallucination. Within a few days Mrs. Crooks said that her mind was much clearer, and that her statements concerning Dr. Horrocks were false. This she maintained at the trial. The jury cleared Dr. Horrocks, but they disagreed as to the credibility of Mrs. Crooks' confession. Thus Dr. Horrocks is in the unfortunate position of being unable to disprove a grave charge, and one to which medical men are especially exposed. Such charges are particularly apt to be made by hysterical women against their physicians, and it is one against which there is no absolute protection. As the *Lancet* correspondent remarks, it is as easy for a woman to imagine the occasion as the act.

Philadelphia Academy of Surgery.—The Samuel D. Gross Prize, $1000.—No essay which the trustees deemed worthy of the prize having been received on January 1, 1900, they hereby announce that the prize will be awarded on October 1, 1901. The prize "shall be awarded every five years to the writer of the best original essay, not exceeding 150 printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens." The competitor who receives the prize shall publish his essay in book form, and shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery, and on the title page it shall be stated that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery. The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 219 South Thirteenth street, Philadelphia," on or before October 1, 1901. Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The committee will return the unsuccessful essays if reclaimed within one year. The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

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CYSTITIS CAUSED BY THE BACILLUS PYOCYANEUS.

By Thomas R. Brown, M.D.,
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WITHIN the past few years the scope of the bacillus pyocyaneus as a pathogenic factor in disease has gradually increased, and this communication is designed to report another pathological process that may be caused by this micro-organism.

Up to within a comparatively recent time this bacillus was regarded as purely saprophytic, and when present in various pathological processes its presence was believed to be entirely accidental, and it was thought to play no part whatever in the etiology of the condition. Of course, it is present sometimes in the saprophytic state, as in the cases in which it has been found in the saliva, the gastric juice, and the contents of the various body cavities ; but the work of Ledderhose (*Deutsch. Zeitsch. f. Chirurgie*, XXVIII, 1888) and Charrin (*La maladie pyocyanique*, Paris, 1889) showed that besides this saprophytic existence, it was possessed of true pathogenic properties, and was capable of producing various pathological conditions.

From the time of the work of these two investigators up to now a constant widening of its pathological field has been shown, and we now know that the bacillus pyocyaneus alone has caused a general septicemia in a number of cases, especially in the very young and very weak, and that it has been the causative agent of wound-suppuration, otitis media, and otorrhea, puerperal infections, diphtheria-like infections of the larynx, endocarditis, hepatic abscess, pleuritis, impetigo, and ecthyma.

Recently, Lartigau (*Journal of Experimental Medicine*, 1898, III, p. 595) has shown it to be the cause of an epidemic dysentery, isolating it from the stools of all the cases, often in pure culture, as well as from the drinking water used by the victims of the epidemic.

In fact, within the past ten years it has been shown so frequently that this micro-organism occupies a direct causal relationship to diseases of various kinds, that among most bacteriologists there no longer exists any doubt as to its pathogenic properties, and Schimmelbusch's (*Volkmann's Sammlung klin. Vorträge*, N. F. No. 62, 1893) objections advanced against this view are no longer tenable with the ever-increasing evidence of the ability of this micro-organism to produce pathological changes in various organs and tissues of the body.

The case I wish to report is one of cystitis, caused by the bacillus pyocyaneus.

The patient, Mrs. R., was operated upon by Dr. Kelly on May 17, 1899, the cause of the operation being pelvic adhesions and a Graafian follicle cyst of moderate size. The cyst was removed and the adhesions separated, this necessitating more or less handling and trauma of the pelvic organs, including the bladder. The urine, examined the day before the operation, was found to be normal, amber in color, of specific gravity 1.013, containing neither sugar nor albumen; while microscopically no pus cells or bacteria, and only a few flat epithelial cells were seen, the specimen being obtained by catheter. The patient had a remarkably uneventful convalescence, with very little pain or discomfort at the seat of operation, voiding her urine without any difficulty after the first few days, during which, however, she was catheterized several times.

On the ninth day the temperature rose slightly, and showed a daily rise to between 99° and 99.5° for a period of nineteen days.

Coincidently with this rise of temperature the patient complained of severe pain in the bladder region, and pain and difficulty in voiding her urine, while the urine itself showed a thick sediment and rather unpleasant odor. A catheterized specimen was immediately examined, and was found to contain enormous numbers of pus cells, some red-blood cells and myriads of motile bacilli, with numerous epithelial cells and some mucus; it contained a small amount of albumen, was acid in reaction, and was amber in color with a faint greenish tinge.

A specimen of urine was then obtained under aseptic precautions by the following method: After cleansing the urethral orifice carefully with bichloride of mercury solution (1 : 5000) and sterile water, a sterilized glass catheter, whose distal end was covered by a sterilized rubber cuff 8 c. m. long, was introduced, the fingers of the operator only touching the rubber cuff; the urine was allowed to flow for a short space of time, when the rubber cuff was pulled off by traction on its distal end, and a small amount of urine collected in a sterile test tube, the cotton plug of the tube being removed only during the reception of the urine. Agar plates were immediately made from this, two loops of the urine being used. After being kept in the thermostat for twenty-four hours,

between two and three hundred colonies had grown out. The organism was in pure culture, and after twelve hours imparted a distinctly bluish-green color to the agar.

The specimen of urine, obtained just after the patient had complained of pain, had been allowed to stand over night, and in the morning one was struck by the green color it had developed, the urine evidently containing enough albumen for the bacterial growth.

Cultures were made from the agar-plate colonies upon the various media; gelatine it liquefied rapidly with marked pigment production; in glucose agar it caused evolution of gas with the appearance of a greenish tinge to the medium; milk it coagulated and acidified; on potato it appeared as a profuse dirty brown growth; in peptone it produced indol, and gave a distinctly green color to the fluid; while examination of the hanging drop demonstrated the active motility of the micro-organism.

A careful cystoscopic examination made at the height of the disease showed "some general injection, with increase in size of the secondary vessels; general reddening of the entire vesical mucosa, but not of maximum degree; no area of erosion, trigonum not markedly injected, deep injection of the urethral vessels." The diagnosis was thus easily made—cystitis caused by the bacillus pyocyaneus in pure culture.

Seventeen days later another culture was taken in the same way, and again a pure culture of the bacillus pyocyaneus was obtained, but in much fewer number, and associated with a lower grade of pyuria. During this time the patient had been on vesical irrigations of borax and soda solution, but as improvement was slow, she was then given urotropin by mouth in five-grain doses three times a day, and within a few days the pus disappeared from the urine and cultures were negative. Since then there has been no recurrence of the trouble.

From the first cultures the pigment, pyocyanin, was isolated, and was seen to possess the typical peculiarities—rectangular crystals, soluble in chloroform, etc.

Although, as stated before, the bacillus pyocyaneus has been shown to have been the cause of many pathological conditions, its presence in the urine has been demonstrated extremely rarely.

Jadkewitsch (*Medicinskoje Obosrenie*, XXXIV, p. 992, referred to in Baumgarten's *Jahresbericht*, 1890, p. 355) reports a case in which this bacillus was obtained from the urine of a patient who for eight years had suffered with a chronic eczema, with recurring attacks of an eruption of purulent ulcers and many constitutional symptoms. No further note is made of the condition of the urine, nor of any vesical symptoms.

Le Noir (*Compt. Rend. Soc. de Biol.*, 1896, p. 71) reports the case of a young man with symptoms of renal calculus and pyelitis (hematuria, pyuria, lumbar pain). Cultures were twice made from the urine, and the case was found to be one of mixed infec-

tion, bacillus coli communis being associated with bacillus pyocyaneus. Le Noir thought that the latter organism had probably been introduced at the time that lithotomy had been performed, and regarded it as saprophytic and harmless.

Motz (*Compt. Rend. Soc. de Biol.*, 1896, p. 128) has reported a somewhat similar case from the clinic of Guyon. His patient was a child nine years of age, who for two years and a-half had had symptoms of cystitis, and whose urine had been turbid, but not bloody, for one and a-half years. The child had never been catheterized except three days before her admission, when Broca had sounded for and found a calculus. On admission the urine was turbid, but of normal color, while microscopically many pus cells and a few red-blood cells were seen. The bacteriological examination showed a pure culture of the bacillus pyocyaneus. After removal of the calculus, the cystitis entirely cleared up.

Von Klecki (*Arch. f. exp. Path. u. Pharmakol.*, 1897, XXXIX, p. 173) has shown that in experimental general infections with this bacillus large numbers of the bacilli are excreted in the urine, and this would seem to suggest the advisability of looking for the bacteria in the urine of those with general pyocyaneus septicemia, but thus far I have found no case of this kind in the literature.

It will thus be seen that of the three cases in which the bacillus pyocyaneus was found in the urine, in one case there is nothing to tell us whether there were renal or vesical symptoms, or how long the conditions had lasted; in another case the bacilli had been present probably for many years, and it is quite impossible to say that this bacillus was the cause of the infection, as the infection might have been caused by another micro-organism which was later driven out by the bacillus pyocyaneus—a view which is strengthened by Le Noir's chronic case, in which bacillus coli and bacillus pyocyaneus were found together, Le Noir ascribing only saprophytic properties to the latter micro-organism.

The case I have described differs essentially from any of these three. The urine was examined a few days before the infection and found to be perfectly normal, while as soon as there were evidences of cystitis, and but a few days after the first examination, bacillus pyocyaneus was obtained in pure culture—a result substantiated by a second bacteriological examination made a few days later. These facts, together with the cystoscopic examination, prove that the bacillus pyocyaneus was the cause and the sole cause of the cystitis, the trauma which the bladder underwent during the operation rendering infection easier, and the probable mode of entrance of the micro-organism being by the catheter.

So far as I know, this is the first case in which the direct causal relationship between bacillus pyocyaneus and cystitis has been definitely proven, and thus adds another to the rapidly-growing list of the pathological conditions which may be brought about by this micro-organism.

A STUDY OF CHRISTIAN SCIENCE.

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ABSTRACT FROM A PAPER READ BEFORE THE JOHNS HOPKINS HOSPITAL HISTORICAL CLUB, MARCH 12, 1900.]

As it is useful and interesting in the field of medicine to inquire into the conditions and causes of diseases not only for the object of curing them, but in order to understand the reasons for their existence, so, in the same way it is profitable to examine those products of civilization which may well be considered diseased, not regarding them as things of no interest, but as curious pathological products whose origin it is worth while to investigate and whose causes are of interest as showing in part the workings of the human mind. Particularly must we remember that every condition, however irrational and absurd it may appear, is the result of definite, actual forces which can be studied and treated as reasonably as a fever or an inflammation can be handled.

This evening we will consider one of the pathological conditions affecting society, a condition not unlike insanity, but affecting a very large part of the community, that appears to have a strong foothold, which derives power from the number, character and wealth of its adherents and which is a menace to the public health and safety.

Christian Science originated in 1866, the "discoverer" being Mrs. Mary Moss Baker Glover Patterson Eddy. For upwards of ten years she developed the system, gradually gaining adherents among her acquaintances, and finally, in 1875, she published her book, "Science and Health, with Key to the Scriptures." This marks the official beginning of the "science." Since that time the number of her followers has increased with great rapidity and her "discovery" has been spread over one-half the world. At the present day the rate of increase is high, and Christian Science is constantly being disseminated in fresh quarters. The Mecca of Christian Scientists is the church in Boston erected in 1894 at a cost of over $200,000. The expense was defrayed by subscription, and it is said that so liberal were the contributions that about $50,000 had to be returned.

A noteworthy fact is that the ignorant and uneducated classes furnish but a small proportion of Christian Scientists, while the vast majority of them are people who have had good educations and who might reasonably be expected to think; people, moreover, who constantly come into contact with others of discrimination and at times with those of intellectual ability. Furthermore, Christian Scientists, with few exceptions, are drawn from those who can add something to the wealth of the church. Except for a very limited number of converts among the inhabitants of our

jails, I have not heard of Christian Science being carried to the poor.

The only life of Mrs. Eddy that I can find was apparently written by a Christian Scientist. She is of an old New England family, and is now, according to common report, about 80 years of age and in feeble health. She is of a strongly religious temperament, and from childhood has been fond of such subjects as metaphysics, moral science, philosophy and logic. She has always been positive in her own opinions, and at 12 years would not yield her views concerning some religious tenets when she was admitted to the Congregational Church.

She was married in 1843 to Col. George Washington Glover of South Carolina, who died a year later, leaving her with one child. Her second husband was named Patterson. From him she was divorced, dropped his name, and Christian Scientists never mention him. He was her husband at the time of the "discovery" of Christian Science. Her third husband was Dr. Asa Eddy, who died in 1882.

She is said to have written extensively in prose and verse under a nom de plume. In addition she has written copiously about Christian Science and has composed some hymns. Her most important Christian science writings are "Science and Health, with Key to the Scriptures" and "Miscellaneous Writings."

Mrs. Eddy was at one time a homeopathic practitioner. She is an ardent advocate of woman's rights, has remarkable energy and zeal, and not only has the most implicit faith in herself and her mission, but inspires her disciples with the same faith. As is usual in the case of a person so much before the public, there are unpleasant rumors as to her early life. Common report has it that Mrs. Eddy was very poor before she "discovered" Christian science. At present she has a palatial home in Boston, another at Concord; she has given munificently to her son, and is said to donate $80,000 per annum to charities.

The origin of Christian Science is described as follows:

Mrs. Eddy was always a student of the Bible, but never could understand why God's healing and consoling gospel could give her no help in her sicknesses and feeble health, even though she was always religious.

The answer came in 1866. "In company with her husband she was returning from an errand of mercy, when she fell upon the ice, and was carried helpless to her home. The skilled physicians declared that there was absolutely no hope for her, and pronounced the verdict that she had but three days to live. Finding no hope and no help on earth, she lifted her heart to God. On the third day, calling for her Bible, she asked the family to leave the room. Her Bible opened to the healing of the palsied man, (Matt. ix, 2). The Truth which set him free, she saw; the Power which gave him strength, she felt. The Life Divine which healed the sick of the palsy restored her, and she arose from the bed of pain healed and free. When she walked into the midst of the family they cried out in alarm, thinking that she had died and that they beheld her ghost. This miraculous restoration dates the birth of Christian Science."

From the foregoing outline it is evident that Christian Science is something more than an empty fad, nor can we dismiss it as a humbug. We must take it for what it is, a strong and growing movement, commanding the energy, enthusiasm and financial backing of a large and influential contingent of our fellow-beings and working for ends that are contrary to our ideas of progress and enlightenment. What, then, is Christian Science? What are its ideals and ideas? What *rôle* does it propose to fill in the play of human life, and what is its *raison d'être?*

The following account of Christian Science is based upon Mrs. Eddy's text-book (which her disciples hold equally as sacred as the Bible), upon lectures by Carol Norton and others and upon information very kindly furnished me by Mr. Hermann Hering, Christian Scientist, of this city.

The central thoughts of Christian Science are contained in the following quotation from the text-book (page 7):

"The fundamental propositions of Christian Science are summarized in the four following, to me, *self-evident* propositions. Even if read backward, these propositions will be found to agree in statement and proof.

1. God is All in all.
2. God is good. Good is Mind.
3. God, Spirit, being all, nothing is matter.
4. Life, God, omnipotent Good, deny death, evil, sin, disease.—Disease, sin, evil, death, deny Good, omnipotent God, Life."

To put it less epigrammatically: God is not merely the Creator and Controller of the universe. He is the universe. Every portion of the universe is a portion of God. God is not a personal God. To make Him personal, they say, would be to make Him finite. He is conceived of as spirit—universal spirit or divine mind.

The most difficult task in Christian Science is to obtain a clear conception of the human intellect or soul. The following quotation may serve to give the Christian Scientists' meaning of the term:

It may be prefaced that intellect, thought, will, sensation, etc., are collected under the term "mortal mind," a term frequently appearing throughout the book with various significations. To quote (pp. 9-10):

"SCIENTIFIC DEFINITION OF MORTAL MIND.

First degree: Depravity.
Physical: Passions and appetites, fear, depraved will, pride, envy, deceit, hatred, revenge, sin, disease, death.
Second degree: Evil disappearing.
Moral: Honesty, affection, compassion, hope, faith, meekness, temperance.
Third degree: Spiritual salvation.
Spiritual: Faith, wisdom, power, purity, understanding, health, love.
In this third degree mortal mind disappears."

To put it in another way: There are two forces acting upon man. Primarily man is a part of God, is controlled by God, and all that he does is right and a part of divine harmony. But in some way a second force begins to act. This force is defined as "mortal mind." This mortal mind, though endowed with powers to be stated below, has no real existence, but is only a false impression. At times this force is obedient to the divine mind controlling man and acts in unison with it, but at other times mortal mind becomes antagonistic to divine mind. When mortal mind is not in accord with divine mind various departures from divine harmony result. These departures are not products of divine mind, but creations of mortal mind, and these creations of mortal mind are summarized as sin, sickness and death. But mortal mind does more. It is responsible for every departure from perfection that is to be found in the animal and vegetable kingdom at the present day and in all ages.

Mrs. Eddy's definition of mortal mind is (p. 583):

"Mortal Mind.—Nothing, claiming to be something, for mind is immortal; mythology; error creating other errors; a suppositional material sense, alias the belief that sensation is in matter, which is sensationless; a belief that life, substance and intelligence are in and of matter; the opposite of Spirit, and therefore the opposite of Good, or God; the belief that life has a beginning, and therefore an end; the belief that man is the offspring of mortals; the belief that there can be more than one creator; idolatry; the subjective states of error; material senses; that which neither exists in Science nor can be recognized by the spiritual sense; sin; sickness; death."

This brings us to the Christian Science conception of matter.

Not only is mortal mind the direct cause of every evil; it has further activity. The conception of God as spirit and of God as actually constituting the universe necessitates the further conception that the universe is spirit—in other words, that there is no such entity as matter, and it is said that "matter is a subjective state of mortal mind evolved in belief by false material sense" (p. 2).

Now, starting with the conceptions that the universe is God the Spirit and that everything else is evil and the result of the action of mortal mind, how is Christian Science to pass from the clouds of speculation to the field of practical life?

The step is simple. No matter what may be the manifestation of mortal mind it can always be rendered negative by creating a firm belief in the reality of divine mind and at the same time just as firm a disbelief in the existence of mortal mind and its products. The firmer these beliefs the more completely can the manifestations of mortal mind be overcome.

A believer, or Christian Science healer sits beside the afflicted one and, as it is said, *argues* the false impression away, replacing it by the true belief. The argument consists not in reasoning, but in the positive, confident and oft-repeated declaration of the nonexistence of the disease and of the totality of divine mind. This

is continued as long as it is considered necessary, and in addition the healer, or both patient and healer, read from Mrs. Eddy's book. By applying these beliefs the Christian Scientist undertakes to turn the criminal to the path of righteousness and give health and vigor to the weak and suffering, and eventually to bring the world to a condition devoid of wickedness and disease, with a final triumph over death.

In their every-day life Christian Scientists drop to a great extent their belief that matter is non-existent and a false belief of mortal mind. They eat, dress, live in houses, walk through doorways instead of through a theoretically non-existent brick wall, and in general live the same life, subject to the same conditions, as the most materialistic of us.

They positively refuse to have any dealings with the biological sciences or with anything that gives a knowledge of the structure or action of the human body, of the action of drugs or of the study of diseases. They say that the more these subjects are studied the more impossible it is for the student to acquire the proper belief in the totality of divine mind and the falsity of matter, disease and death.

Upon the problems of death and the origin of life I cannot make clear to you the Christian Science views. To questions that I asked upon these points I was told that it required years of study of Mrs. Eddy's system in order to arrive at a correct understanding. The stumbling-block with me is briefly set forth. As all Christians believe in the immortality of the soul, that question need not be considered as a special Christian Science problem, and it only remains to deal with the body. Can Christian Science save the body from death? Now, Christian Science states that there is no body, but only a false belief—a belief, moreover, which can be and is to be obliterated. If the body is obliterated, how is Christian Science to save it from death? It reminds one very much of the grin without the cat that surprised Alice in Wonderland.

Let us now consider Christian Science as a system of medical practice.

Christian Science denies the utility of medical knowledge and medical methods and refuses to use drugs, surgery or any therapeutic agent other than divine mind. They abhor diagnosis, for Mrs. Eddy says that the diagnosis of a disease tends to bring on the disease. They utterly disapprove of hygiene, cleanliness, antiseptics, vaccination, the isolation of contagious diseases, and in general of all those methods ordinarily considered useful in the prevention and relief of disease. They undertake to cure every form of disease by inducing the patient to disbelieve in its existence and to acquire faith in their God. Not only do they undertake to cure adherents of the system, however, but also non-believers, children, animals, and even plants.

Mr. Hering says that he has had about 80 per cent. of cures, including those given up by regular practitioners. This percentage

is almost surely incorrect. The Rev. Oliver Huckel estimates that 5-15 per cent. are cured in Christian Science.

The reason for supposing that Christian Scientists claim more cures than they effect are the following:

1. They keep no records of cases, and therefore cannot note accurately what changes occur in the patient.

2. They make no diagnosis of disease, and therefore there is no assurance that they have treated the diseases claimed.

3. They make no examination of the patient after treatment, and therefore there is no proof that they have effected the cure claimed.

Dr. Huber in New York had a chance to examine some "cures," and found absolutely no basis for their claims. All attempts to get proofs of their good results have failed. Mr. Purrington attempted to get them from Mr. Carol Norton. The proofs consisted in short statements by the Christian Science healers. There is, however, no doubt that a certain number of cases recover. These recoveries depend upon two chief factors. In the first place, as is well known, the majority of sick people recover without or in spite of treatment. Such cases are regarded by Christian Scientists as cures due to their methods.

Now, the important question is, What is their method? Have they added anything new to the stock of medical knowledge? I think there can be no doubt that they have not. Notwithstanding the most vigorous denials by Mrs. Eddy, in spite of the most solemn assurances from Mr. Hering that I do not understand the case, I cannot escape from the conviction that the only therapeutic agent at work in Christian Science is mental suggestion. The fact that the healers and patients are firmly convinced that each cure is a divine manifestation does not weaken, but, indeed, supports this idea.

At one time Mrs. Eddy was a homeopathic practitioner and employed the greatly diluted preparations of that cult. She found that she could obtain just as good results by giving no drugs as by using the weak drug. This put her on the track of Christian Science, and this is nothing in the world but mind-cure or mental suggestion. Moreover, she constantly illustrates the action of Christian Science by reference to this feature of homeopathy.

Secondly, Mrs. Eddy was at one time under treatment by a Dr. Quimby, who employed hypnotism. Her text-book appeared about a year after his death.

The strongest evidence that Christian Science is mental suggestion is furnished by her method of employing it. The patient is told to be calm, and is assured that all will go well; that he must try to aid the healer by believing that which is told him. The healer quietly but firmly asserts and reiterates that there is no pain, no suffering, that it is disappearing, that belief will come, that the patient is getting well. To render the patient more susceptible an appeal is made to that most potent agent, religious fervor. If the name were not given one would suppose that the description was not of Christian Science, but of hypnotism. It is

not improbable that the subjects are at times actually hypnotised. The Rev. Mr. Huckel finds that Christian Science has about the same percentage of cures that are effected by other mind-cures, as at the various Catholic shrines, by avowed mind-healers and in the cases treated with bread-pill medicines.

There is no point upon which a Christian Scientist is more emphatic than in denying that Christian Science healing is due to mental suggestion. According to Mrs. Eddy, Carol Norton and those Christian Scientists with whom I have conversed, the healing is effected not at all through mental suggestion nor through any miraculous intervention involving a departure from the normal course of nature, but by the natural, ever-present action of the divine mind. The cures of Christ (which they deny were miraculous) were of the same character. They claim that Christ has made it a duty for every one of his followers to "heal the sick" (Matt. x, 8), a duty as binding as any other Christian observance.

There is one feature of Christian Science healing that I have delayed mentioning because I wanted to give it especial prominence, that is, the Christian Science treatment of children too young to be given the "argument treatment," as it might be called.

The Christian Scientist goes upon the assumption that if the child is too young to have false beliefs himself any illness that may overtake him is the result of false belief on the part of his parents or of those in charge of him. Therefore, when summoned to attend a child, the Christian Scientist pays absolutely no attention to the child, but proceeds to con ince the parents that there is nothing the matter with it; that there is only a wrong belief in their minds, which they must dismiss if they wish the child to recover. In no case do they recommend any medicinal treatment, nor, even in the presence of suffocation by diphtheria, attempt to alleviate in any way the infant's distress. And all this in the name of religion!

Let us now look at Christian Science as a whole. We see that the head of the movement is a woman who is considered by some to be the victim of a form of insanity known as paranoia; a woman whom many more consider simply an impostor growing rich at the expense of her deluded followers; a woman evolved from homeopathy who claims the powers of divinity. We see that this woman has built up a system showing the utmost crudeness of construction, full of inconsistencies and self-contradictions, displaying at every turn the author's ignorance of the meanings of words, her confusion of ideas and complete inability to reason logically. We see the head of this system guilty of horrible blasphemy, denouncing as false the findings of all human experience, arrogantly vaunting herself as the only human being with true knowledge, and on every page of her book boasting of her superior wisdom. We see the members of this school making the most extravagant claims of their power over disease; we see them in the name of religion sit passive at the bedside of suffering infancy; we see them in the name of religion attempting to undo all that

has been accomplished by millions of earnest workers and thinkers to better the conditions of human life.

On the other hand, we see this sect growing like a mushroom. We see that thousands of rational people accept Christian Science *in toto;* that it numbers among its followers judges, lawyers, doctors, ministers, business men and people of all classes except the poor. We see them devoting to it their time, their enthusiasm and their money. We see people whom it would be ridiculous to call insane refusing any other assistance in their most serious illness and relying upon the efficacy of Christian Science to save their children from the grave. How can we account for this curious condition?

Christian Science appears to have no points in its favor that are original or peculiar to itself. The idea that disease is a work of evil or, in the Christian Scientist's nomenclature, of mortal mind is as old as history. This idea of sin as a work of the devil is seen in the histories of all the ancients. It occurs in the Bible; it was the thought that prompted the treatment of insane people in the olden times, and it is not an uncommon thing to see evidences of the same idea nowadays. Again, the most attractive feature of the Christian Science religion is the manner in which they insist upon the healthfulness and necessity of cheerfulness, composure and self-forgetfulness. But this cannot account for the strength of Christian Science, for this is not a new doctrine. The same thing is being brought more and more to the front as an essential part of personal religion by the churches throughout the land.

Again, the only idea brought forward by the medical teaching is the efficacy of mental suggestion as a therapeutic agent. But this is by no means new. There is no one who denies its utility. It is employed, consciously or unconsciously, to a very wide extent, while one branch of it—hypnotism— is steadily growing in importance as a therapeutic agent.

If we cannot find the *raison d'être* of Christian Science in its intrinsic qualities, how is it explicable?

This brings us to the consideration of a curious phenomenon which has recurred from time to time since the foundation of society, and consists in the rise and enormous popularity among reasoning people of ideas that are utterly irrational or contain but a grain of reason. The same phenomenon was illustrated in the early spread of homeopathy, of Thompsonianism, of Perkinism, of theosophy, of Schlatterism, and in the history of many more popular fallacies, either defunct or passing.

The following conditions are concerned in the growth of Christian Science:

In the first place, there is always an element in the community whose tendency is to go to extremes in adhering to their ideas. A person of this class, being convinced of the truth of that portion of Christian faith which teaches the universality of God, will apply his belief blindly to every case without regard to any evidence that fact and reason may oppose.

Secondly, the great improvements in the material comforts of modern life, and also the great development of the natural sciences, with their rigid demonstration of material origin and causation, are (at least in part) responsible for the materialism that so widely pervades modern thought. It is only natural that there should be a reaction from this materialism, and from its causes to the extremes of idealism.

In the third place, there are always people eager for something new, seeking for miracles and ready to believe it possible to obtain the complete mastery over nature that Faust despaired of after a life of endeavor.

The chief basis for the growth of Christian Science, however, is the same that underlies every popular pseudo-science. Oliver Wendell Holmes outlines very clearly the factors concerned, showing (a) how easily abundant facts can be collected to prove anything whatsoever, (b) how insufficient "exalted wisdom, immaculate honesty and vast general acquirements" are to prevent an individual from having the most primitive ideas upon subjects out of his line of thought, and finally, demonstrating "the boundless credulity and excitability of mankind upon subjects connected with medicine."

The same conditions referred to in Holmes' essay are responsible for Christian Science. Furthermore, Christian Science is partly a religious mania (though the title of the text-book shows the relative importance of its medical and religious doctrines).

A further source of strength in Christian Science is the confidence with which the teacher assures her followers that they are the only profound thinkers in the world; that the adoption of her ideas is a mark of superiority separating them from the ordinary masses.

Such being the status of Christian Science, what may we conclude as to its future?

There is no doubt that the only grain of truth supporting Christian Science is its employment of mental suggestion. It is probable also that mental suggestion has a much wider field of application than it receives at present. It seems not improbable that as regular practitioners develop the possibilities of suggestive therapeutics more and more they will cut away the only prop that can hold up Christian Science, though it will almost surely disappear even without such deprivation.

It is no stretch of the imagination to predict that our generation will see the decadence of Eddyism and the rise of another pseudo-science just as impossible as the Christian Science and just as powerful.

Christian Science is very shrewdly planned to give it a strong and enduring foothold. The regulation limiting the right to perform the marriage ceremony to the converted ministers from other churches illustrates this, and features of their medical system serve as better illustrations.

In the first place, although they claim to cure all diseases, Mrs. Eddy advises them not to deal with the surgical cases. The reason

for this is obvious. The good or bad results of treatment in surgical cases are much more evident to the lay person than are the results in medical cases. The bad results in surgical cases would lay the Christian Scientist open to prosecution in court. Again, Christian Scientists when called to treat cases profess the utmost willingness to allow regular practitioners to be summoned, though they advise their followers of the wickedness of such procedure, and they refuse to charge fees for services rendered, though Mrs. Eddy has stated that "Christian Science demonstrates that the patient who pays whatever he is able to pay for being healed is more apt to recover than he who withholds a slight equivalent for health" (Miscellaneous Writings). They give no remedies nor medical advice, for that would subject them to prosecution; and finally, they claim that they, themselves, are not the effectors of cures, but the agents of God, and that to interfere with their medical practice is to interfere with their freedom of conscience and right to pursue their religious beliefs.

In concluding, I must state what seems to be the proper attitude for us to hold toward Christian Scientists.

Not many active measures need be adopted for this cult. The most rapid and efficient means of destroying them is to bring prominently before the public the manifest absurdities of the school and the dangers attending its spread. Severe measures would tend to strengthen their hold by putting them in the position of persecuted martyrs. There are, however, three points that it is well to aim at in dealing with them:

1. To insist that they report to the health department all births, deaths and contagious diseases, and that in the latter class of cases they take proper means to protect the community.

2. To secure for small children proper protection from Christian Science extravagances.

3. The third point is too big to be more than touched upon here, and deals with the regulations of medical practice in general; but, in brief, we should attempt to limit the right to treat the sick to those who have given satisfactory evidence that they possess a knowledge of the conditions of health and disease and who can show that they have the requisite training. These objects are to be attained by legislation to debar the ignorant from practice and by prosecution in the courts those who practice without proper qualifications.

There are numerous cases in which Christian Scientists have been prosecuted in various States, but up to the present they have escaped either upon the ground that they were not medical practitioners, but were simply meeting the demands of their religion, or upon a defect in the statutory definition of what constitutes the practice of medicine. Upon the first of the points the Supreme Court of the United States has declared that no one can violate the law under the cloak of religion. The usual defect in the statutory definition of medical practice is that the giving of drugs or other medical treatment is considered necessary to make a person a practitioner, and Christian Scientists use no medical measures.

SOME INTERESTING CASES OF MASTOIDITIS.

By H. O. Reik, M.D.,

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READ BEFORE THE CLINICAL SOCIETY OF MARYLAND, MARCH 16, 1899.

AMONG the twelve mastoid operations performed in my service at the Baltimore Eye, Ear and Throat Charity Hospital during the year 1899 five were of sufficient interest to warrant publication.

Case 1. *Acute Bezold Mastoiditis, without Perforation of Tympanic Membrane.*

S. R., male, colored, aged forty-nine years, contracted a severe cold during the blizzard of February, 1899, and for two days before coming to the dispensary, February 24, suffered with pain in the right ear and soreness extending over the mastoid area. The tympanic membrane was intensely congested, but not bulging at any point. He refused to permit a paracentesis, and leeches were ordered to be applied over the mastoid antrum and tip, and a purgative was administered. On March 10, two weeks later, he returned to the dispensary, saying that he had not used the leeches, because he had no money with which to purchase them, and, as his pain had abated after the free purgation, he had not thought it necessary to return, until the night before when the pain recurred. The tympanic membrane was then in about the same condition as when first seen. A purgative was again ordered, and he was given a solution of cocaine and atropia to drop in the ear. At his next visit, March 13, he was feeling better, but complained of tinnitus, and, in my absence, one of my assistants inflated his tympanum by Politzer's method. He remained away from the dispensary then until April 5, when he came back with a large swelling over the mastoid process, about 6 c. m. in diameter, painful to the touch and slightly fluctuating. He had not slept for several days and nights. He refused to enter the hospital, and went home to treat himself by poultices, etc., but two days later concluded to submit to operative treatment.

The swelling had increased in size, and also extended downward along the sterno-cleido-mastoid muscle. Temperature 99.6°, pulse 88. Operation was performed April 8, and when the skin and periosteum were incised about 15 to 20 c. c. of pus escaped, most of it seeming to well up from the neck. The external surface of the mastoid process was smooth and healthy-looking, but, on passing the finger around the tip, I could feel its under and internal surface rough and eroded. The antrum was then opened by chiseling through a very dense cortex, and found full of pus and granulation tissue. An opening in its floor led to removing the cortex in that direction, and a large cell was found, extending almost to

the tip, and presenting one opening in its inner wall, which led into the digastric fossa, and another in its floor, which perforated the tip. Almost all of the anterior half of the mastoid process had to be removed, and much pus and granulation tissue was removed from the infected area along the sheath of the muscle. After thorough cleansing, the wound was dressed with iodoform gauze.

The temperature was normal the next day, and the patient made a very satisfactory recovery, being discharged well on April 30. Pus taken from the antrum and from the neck abscess at the time of operation showed a pure culture of the pneumococcus.

In this case the very dense external cortex of the mastoid resisted the inflammatory attack, and the process, following the direction of least resistance, broke down the cellular structure and internal wall of the bone into the soft tissues of the neck, forming what is now commonly described as a Bezold abscess. It is interesting to note, first, that the typmpanic membrane was never ruptured, although the tympanic inflammation was prolonged, and second, that there was very slight fever at any time, despite the destruction going on, of which there was almost no evidence until the swelling appeared in the soft tissues. A question arises concerning the use of the Politzer air bag in such a case. Did it force inflammatory material from the middle ear into the antrum? Most certainly it may have done so, and I would not countenance its use under such circumstances, but I doubt if it was a causative factor here, because the patient had, previous to that time, complained of pain in the mastoid region and down the neck.

Case 2. *Septic Lateral Sinus Thrombosis, due to Chronic Suppurative Otitis Media. General Sepsis. Operation. Death.*

C. S., twenty-five years of age, came to the dispensary of the Baltimore Eye, Ear and Throat Charity Hospital July 10, 1899, with the statement that for ten years, following an attack of scarlet fever, he had had a continuous discharge from both ears. For the past week the right ear had been very painful, the pain extending all over the temple and mastoid region. For two days he could not sleep.

The external auditory canal was full of foul-smelling pus, which, when removed, revealed the tympanum filled with granulations, which bled freely when an attempt was made to cleanse the canal. There was no redness or swelling over the mastoid, but marked tenderness on pressure over the region of the antrum and near the tip. He did not feel sick, and, believing that he had an ordinary earache, refused to remain in the hospital under observation. A solution of formalin was prescribed for syringing the ears, compound calomel powder administered, and the application of ice to the mastoid advised.

On the following day he felt somewhat better, but on the second morning, after a restless night, he had a "fainting spell." This was followed by two or three chills during the morning, and when I saw him in the afternoon his condition was quite serious. With

a temperature of 105.4°, pulse 120, his face wore an anxious expression, and there was every evidence of general sepsis. I suspected the presence of a thrombus in the lateral sinus, and, explaining the serious nature of his condition, undertook an operation.

The cortex of the mastoid was not very thick, but was hard and ivory-like. The antrum contained only a drop or so of pus, and the whole process was then laid open down to the tip. Nothing of importance having been disclosed, the opening was now extended in the direction of the sigmoid curve of the lateral sinus. As soon as an opening was made over the sinus a few drops of pus appeared, which must have been covering its walls. Not more than ten or twelve drops welled up, and, unfortunately, my assistant sponged it off so quickly that none was obtained for examination. We expected to find more when a larger portion of the vessel was uncovered, but a most diligent search was not so rewarded. The history of the case, the sinus wall bathed in pus, and the scarcity of pathological findings elsewhere seemed to make the diagnosis of sinus thrombosis now almost certain. So, although the vessel was seemingly of normal appearance, I decided to open it. The field of operation was thoroughly cleansed again and the vessel cut across. Blood flowed freely, apparently from both ends of the sinus. I felt that I must abandon the diagnosis of thrombosis. A compress bandage, with bichloride gauze dressing, was applied and the patient put to bed.

From this time on his condition became slowly but steadily worse. The temperature chart shows a characteristic curve of sepsis. He grew weaker, and at the end of five days exhibited signs of meningitis. The mastoid wound had remained perfectly clean, but on July 18 two exploratory openings into the cranial cavity were made above the antrum, in the middle fossa. Nothing was found to throw any light on his condition. At the same time the compress was removed from the sinus, and free hemorrhage again established. The blood was thoroughly examined at the Hopkins laboratory, but with negative results.

Being compelled to leave the city the next day, I asked Dr. Harry Friedenwald to take charge of the case. The patient growing steadily worse, Dr. Friedenwald opened the wound again on July 21, and, removing the posterior wall of the external auditory canal and the inner wall of the space I had looked upon as the antrum, disclosed the true antrum deeper and somewhat in front of this space. Nothing was found in the antrum. Two days later, the patient still failing, Dr. Friedenwald again investigated the wound, and this time found a clot in the sinus and the lower part of it soft and septic. He cleaned the vessel out as far as the jugular bulb, but did not succeed in re-establishing a flow of blood. Septic pneumonia now set in, and the patient died July 29. Autopsy was not permitted.

Reviewing the case now, I am of the opinion that my first diagnosis was correct. The free hemorrhage led me to believe that the

sinus was healthy, whereas there was probably a parietal thrombus, not quite occluding the lumen of the canal. The question arises whether it would not have been well to ligate the internal jugular vein. I did not at the time, and do not now, feel that the indications warranted such a procedure.

We have here also an excellent illustration of the danger of neglecting chronic suppurative otitis media. This young man had gone along with nothing worse than the inconvenience attending a foul discharge from the ear for ten years, when suddenly, and with very slight warning, a vital spot was reached, and he suffered from general blood poisoning. I mention this point simply because I have during the last few weeks heard of two physicians in this community advising such patients not to seek to stop their otorrheas lest "it break out somewhere else."

Case 3. *Acute Mastoiditis, due to Chronic Suppurative Otitis Media, and Complicated by Subdural Abscess, from which Pure Culture of Bacillus Coli Communis was Obtained. Operation. Recovery.*

G. W., white, aged twenty years, applied for treatment at the Johns Hopkins Hospital Dispensary September 30, 1899; had scarlet fever when four years old, and this was followed by a chronic otorrhea. He had recently suffered a great deal of pain about the right ear, and four days previous to this visit a swelling appeared over the mastoid region and increased rapidly in size, until it extended above and slightly in front of the auricle. This swelling was quite red, very painful to the touch, and showed marked fluctuation. His temperature at the time was 101° F., pulse 102. Immediate operation was advised, and he entered the hospital the same evening.

When prepared for operation the skin over the swelling was almost tense enough to burst spontaneously. The tumefied area extended upward 2 c. m. above the auricle, forward slightly in front of the auricle, downward to the tip of the mastoid process, and backward quite to the mid-occipital line. The instant the skin and periosteum were incised pus spurted from the wound, and the room was filled with an overpowering fetor. Fully 200 c. c. of pus was evacuated, and then a carious opening was found in the cortex leading directly into the antrum. After cleaning out the antrum and mastoid cells a very minute dark spot was noticed on the external surface of the bone above and behind the antrum opening. It suggested diseased bone, but further investigation had to be abandoned at this point because of the patient's weak condition. He had not taken the anesthetic at all well. The next day the temperature had fallen to 99°, and it ranged between 98° and 100° for several days. The pulse remained rapid and weak, and stimulants were repeatedly used.

When the dressings were changed on October 3 there was a foul purulent discharge, both from the mastoid wound and the external auditory canal. Gradually his condition improved, the mastoid wound almost closed, and he was able to leave the hospital October 20, still having a purulent discharge from the ear and

from a fistulous opening over the antrum. Pulse and temperature had became normal by October 10, and remained so.

He remained under observation at the outdoor department, and, the otorrhea continuing, was persuaded to undergo another operation, which he did January 19, 1900. A probe introduced into the mastoid fistula entered a cavity apparently higher than and posterior to the antrum. A long vertical incision was made in front of the old scar and close to the insertion of the auricle, and a second horizontal incision carried backward through the fistula. Loosening the cartilaginous portion of the external auditory canal and drawing the auricle well forward, a large field of operation was obtained. The former opening into the antrum, was almost completely closed by organized fibrous tissue, which was removed, and then the posterior canal wall was taken away, as in the radical Stacke operation. A probe passed through the antrum then took a course upward, inward and backward into the cranial cavity, and released 5 or 6 c. c. of pus from the subdural space. On the external surface above and behind the antrum opening was a carious perforation 6 mm. in diameter, filled by exuberant granulation, and evidently this was the space the probe had entered through the fistula. On enlarging it by curette some pus and a considerable amount of cheesy material, varying in color from yellowish-green to black, was expelled. A probe entered here passed downward and forward into the antrum. The dura was felt above and around the space, seemingly walling it off perfectly. The bridge of bone between this opening and the antrum was quite large, and, as ample drainage seemed to be provided, it was decided not to remove it. Iodoform gauze packing was used, and the wound left to close by granulation. This patient has made a perfect and uninterrupted recovery. There has been no discharge since the operation.

Pus removed from the antrum at the time of the first operation showed, on cover-slip examination, the presence of streptococci. Culture tubes were prepared, but through some laboratory accident were not followed up.

At the second operation the pus from the ear was not examined again, but that removed from the subdural abscess gave us a pure culture of the bacillus coli communis.

The peculiar features of this case are the existence of a subdural abscess, without characteristic symptoms, and the nature of the infection. I have not had the opportunity to search for other cases of mastoid infection by the colon bacillus, but I cannot recall any reported cases, and feel sure that they must be rare.

Case 4. *Acute Mastoiditis following Acute Otitis Media, without Rupture of the Tympanic Membrane. Treated by the Blood-clot Method. Healing in Ten Days.*

W. P. J., colored, forty-three years of age, was first seen July 7, 1899, when he stated that in January he had suffered for eight or nine days with a severe earache on the left side, for which he was treated at the Maryland General Hospital. There had never been

any discharge from the ear. About the 23d of June a swelling appeared over the mastoid, accompanied by such intense pain that, according to his own statement, he "had not slept an hour in two weeks." There had been some pain and soreness about the ear constantly from the time of the acute earache in January. The tympanic membrane was intact, but of a dull, opaque appearance. The upper wall of the canal was slightly drooping; mastoid swelling fluctuated on pressure. Incising the skin and periosteum, an opening 3 or 4 mm. in diameter was found in the cortex leading into the antrum, which was filled with granulation tissue, some of which protruded through the carious opening. The bone broke down readily before the curette, and a large amount had to be removed. All the diseased tissue was thoroughly removed, the field washed with bichloride solution, and, the cavity being allowed to fill with blood-clot, the skin wound was closed tightly by sutures, and dry gauze dressings applied. When the dressings were changed on the fourth day the wound was found to be healed, except for an opening about 6 mm. long in the upper third, where a small portion of the clot had broken down. Carefully cleansing that area, and touching it with a solution of silver nitrate, complete healing was secured within a week.

The organism found in this case was the staphylococcus pyogenes aureus.

Case 5. *Acute Mastoiditis following an Attack of La Grippe, which was Accompanied by Otitis Media, without Perforation of the Tympanic Membrane. Operation. Healing by Blood-clot Method in Five Days.*

Mrs. S. E., aged thirty-eight years, came to the Johns Hopkins Hospital Dispensary April 11, 1899, with a history of having had la grippe two months previous, associated with an acute otitis media of the right ear. There had been no otorrhea, but more or less constant pain in and behind the ear all this time. Her family physician, failing to relieve the pain, advised her to consult an otologist. For some days previous to her visit to the hospital the pain had been increasing in severity.

There was no swelling or redness over the mastoid, but pressure over the antrum produced severe pain. The tympanic membrane was dull and of thickened appearance, without congestion. The application of leeches to the mastoid was advised, to be followed by the use of the hot-water bag, and broken doses of calomel. No improvement followed this treatment, and a mastoid operation was performed April 15. The bone was quite congested, bleeding freely, and the antrum and adjoining cells contained some pus and a great deal of granulation tissue. The diseased area being limited to the antrum and a few of the neighboring small cells, this case offered favorable indications for the use of Blake's blood-clot method. Accordingly, after thorough removal of all diseased tissue and cleansing of the wound, the cavity was allowed to fill with blood, and the periosteum and skin sutured over it. When the dressings were removed on the fifth

day the incision was entirely healed, and, removing the stitches, a collodion dressing was applied and left on for two days until the suture perforations had closed. Examination of the pus removed from the antrum showed the presence of the pneumococcus.

In the two last cases, as well as in Case 1, there had been an acute otitis media, followed by mastoid involvement, without rupture of the tympanic membrane, or any evidence of pus in the tympanum at any time.

An experience of only two cases treated by the blood-clot method suggested by Dr. Blake does not, of course, entitle one to draw any conclusions as to its value. In Case 4 a small portion of the clot broke down, externally, but in spite of this the final healing occurred in much less time than has been usual in similar instances where I have packed the wound. In the last case related the patient left the hospital well on the fifth day after the operation—a result that leaves nothing to be desired.

A CASE OF MEASLES, SCARLET FEVER, DIPHTHERIA, OTITIS MEDIA, MASTOIDITIS, ETC.

By Herbert Harlan, A.M., M.D.,
Baltimore.

A CHILD when about eighteen months old in November, 1898, had an attack of measles. This was followed by otitis media and otorrhea on the left side. The discharge continued, and in the following March the child had an attack of scarlet fever, and immediately after had diphtheria. At that time both ears became inflamed and discharged. He was treated by antitoxin, and had one or two convulsions. I was called to Belair in consultation, and found him recovering from the diphtheria. Both ears were discharging, and to all tests that could be made there was absolute deafness. In addition, there was paralysis of the left arm and leg. I concluded that the paralysis and deafness were probably due to meningitis. Treatment was instituted for the otorrhea, the hearing slowly came back, and the paralysis became limited to certain groups of muscles of the arm and leg. The general condition, as may be imagined, was exceedingly bad. The cervical lymphatics began to suppurate, and during the summer four or five of them were opened by Dr. Finney.

Summer diarrhea added to the complications, and the otitis media extended to the mastoid in July. I was summoned to operate for that complication on the 28th. By this time he was re-

duced to nearly skin and bones. He had several open sores on the neck, one of which was so deep as to communicate with the mouth. He had fever and other evidences of sepsis, but his most urgent trouble was the mastoiditis. With much reluctance, but with Dr. Finney's assistance, I proceeded to open the mastoid. Pus was found just inside the bony covering. Owing to the condition of the patient I did not think a complete mastoid operation either wise or necessary. Some weeks later a pneumonia, and then an empyema, developed, and Dr. Finney found it necessary to drain the pleural cavity by taking out a piece of one of his ribs. From this time he began to improve, and the attack of chicken-pox, which occurred along in the fall, was of small moment. I may say that two or three other children in the house had whooping cough during the summer. This he escaped. His recovery was steady. He became fat and rosy, but both ears still discharged freely, and on the 5th of January he came to the Presbyterian Eye, Ear and Throat Hospital that something more might be done for this. The mastoid wound had closed, but it had been open and discharging several times. The ears were carefully cleaned three times a day with peroxide of hydrogen, syringing, etc., and then a 1 per cent. formalin solution was used. Under this the right ear rapidly improved. There was little change in the left, and on the 11th of January the mastoid scar showed evidence of opening. Chloroform was administered, the wound opened, and a large quantity of necrosed bone and granulation tissue were removed. As usual, he stood the operation well, and within an hour was playing around the room. The dressing was removed on the sixth day, and the patient left the hospital on January 22. At that time the mastoid wound had nearly closed, his hearing was good, the perforations in the membrana tympani were very minute, and the only discharge was a little moisture, which would collect at the bottom of the canal in twenty-four hours.

A letter about the middle of February stated the ears had ceased to discharge, and that the child was doing well in every way.

Within the last few days I am informed that he has had a severe attack of pneumonia, but thanks to the constant attendance of Dr. Jas. F. Mitchell for several days, and the free use of oxygen and salt solution, he is again on the road to recovery.

Current Literature.

PATHOLOGY AND NEUROLOGY.

Under the Supervision of Robert Reuling, M.D., Baltimore.

On More Recent Investigations on Antitoxin Immunity. C. Weigert (Frankfurt a. M.), *Ergebnisse der Allg. Pathologie und pathol. Anatomie der Menschen u. der Thiere.* Bd. IV.

Weigert begins his article with a discussion on the subject of the so-called natural immunity which certain animals possess against various toxines. He shows how this form of immunity is not due to the presence of an antitoxin in the organism of such animals, and has, therefore, nothing in common with antitoxin immunities, with which the article deals more especially. He shows that there are two distinct and separate varieties of antitoxin immunity: First, an "active" immunity, which is brought about by introducing into the organism small quantities of a poison, which amounts must, of course, be carefully estimated for each species of animal, the body weight of the animal being considered. By the introduction of gradually increasing doses an antipoison is formed, so that the organism can stand very much larger amounts of a toxin than was the case before the antitoxic substance was formed.

The second variety is a "passive" immunity. In this form the antitoxic substances are introduced into the organism in a prepared state in the serum of another animal which has been immunized against some special toxin. These two forms of immunity differ in almost all respects from one another. The "active" form must necessarily be brought about very gradually, and when once obtained it persists usually for a long period, often for years. The "passive" form is quickly brought about, the toxin being immediately acted upon when in contact with the antitoxic substances. It is, however, an immunity of short duration. The action of an antitoxin does not rest on its power to directly detroy a toxin, but its action consists in neutralizing its poisonous power in a purely chemical action, and thereby making it harmless. The antitoxin cannot be derived directly from the toxin; the manner of its formation is best explained by Ehrlich's so-called "side-chain theory" (*Seiten kettcn theoric*) of cell activity. This theory has as its foundation the theory of the arrangement of atoms in certain groups of organic chemical compounds; taking, for instance, the benzol group, consisting, as it does, of a central ring of very stable atoms, around which are grouped certain groups of atoms of less stable character, and which combine with more or less ease when brought in contact with certain other atoms, forming various substances, which still contain as a nucleus the central group of atoms, so that the individuality of this group is not disturbed, and the compound thus formed still belongs to the benzol series. Ehrlich compares the nucleus of a cell to that portion necessary to the life-history and integrity of the cell in general, and in this respect it resembles

the central group of atoms of the organic chemical benzol series. Around the nucleus in the protoplasm of the cell are certain particles, which have less to do with cell life, but are more susceptible of combination with various chemical substances, and these more or less susceptible "side-chain" protoplasmic atoms (if we may be allowed to use this term) resemble the less stable atoms in the benzol compounds. If a toxin is introduced into the organism, provided it does not destroy the nucleus of the cell, its action is confined to the stable protoplasmic portions grouped about this nucleus. These form certain combinations with the toxin which are later extruded from the cell, and enter the circulation as antitoxins. The cell activity is not much disturbed, and as long as the nucleus is intact these protoplasmic atoms are reformed, so that the cell is prepared to form and reform antitoxic substances. If the serum contains a sufficient quantity of antitoxic substance, and a toxin be introduced, the former acts directly on the latter, making it harmless, so that it exerts no more irritating effect on the cells which were susceptible to the action of the toxin. This neutralization goes on all the more readily, as both substances are in solution in the serum.

Ehrlich claimed for his views only the rank of a hypothesis. They have, however, been to a great extent substantiated in a thoroughly practical way by the work of Wassermann, Ransom and Mariena, and many of the former investigations of Metschnikoff on "natural immunity" in animals against certain poisons now seem well explained by Ehrlich's views. The work of Roux and Bonel, which these investigators believe disprove to a great extent Ehrlich's views, more especially the results of their work on action of the central nervous tissues on the toxins of tetanus, if we carefully consider their results, Weigert says "that one is struck that these investigations rather strengthen Ehrlich's views, and much of their adverse criticism rests on a misconception of this 'side-chain' theory." Ehrlich has also increased our knowledge very much in regard to the toxins formed by the organisms of tetanus and diphtheria, from both of which he was able to separate two distinct toxic substances, which possess widely different actions. From the organism of tetanus he obtained a poison which acts as a specific poison for the nerve cells. This substance he calls "tetanotoxin;" the other substance acts as a specific poison to the red-blood cell, producing a rapid anemia, but none of the symptoms of tetanus (*tetanus sine tetano*). This latter substance he calls "tetanolysin." He was able to immunize animals against each of these substances, and showed conclusively that immunization against one did not insure against the action of the other, proving more conclusively the specific action of toxins and antitoxins. There is so much of interest in this article of Weigert's that one hesitates to present such a brief and necessarily unsatisfactory review. It is presented more with the idea of inducing the reader to consult the original.

A Method of Staining the Medullated Fibers "en Bloc," and a Modification of the Marchi Method. David Orr. *Journal of Pathology and Bacteriology*, February, 1900.

As the author very rightly asserts, the frequent failures in staining tissues by the Marchi osmic acid method are often due to the fact that osmic acid penetrates the tissues so imperfectly that the effects of the stain (even if extremely small pieces of tissue are used) are limited to a narrow peripheral zone, while the central portions remain unstained, or irregularly impregnated. All who have had experience with this method have no doubt had similar experiences, so that any means that would insure an even impregnation by the osmic acid would be a valuable addition to the Marchi method.

Orr, after carrying on experiments with various substances, found that the addition of acetic acid to the osmic acid increased its penetrating powers very much, so that an even permeation of small pieces was readily obtained, and a careful comparison of the results obtained from pieces treated with the osmic-acetic acid mixture and those treated by the original Marchi mixture of equal parts of a 1 per cent. solution of osmic acid and Müller's fluid showed that the addition of the acetic acid gave far more satisfactory results.

Orr's modification of the Marchi method is about the following:

The tissues are placed in Müller's fluid from fourteen days to one month, being careful to use blocks not exceeding one-eighth of an inch in thickness; the pieces are then placed in a solution of 1 or 2 per cent. osmic acid, mixed with a 1 per cent. acetic-acid solution in the proportion of four parts of the former to one part of the latter; in this mixture the tissues remain ten days. This mixture must be renewed whenever the odor of osmic acid disappears. The pieces are next washed under running water for twenty-four hours, then mounted in the usual way in paraffin or celloidin. Orr advises the use of paraffin, as it allows of cutting very thin sections. The sections can be counterstained by various methods, the author advising the Van Gieson stain for this purpose. Those interested in the subject are refered to the original article, as the author has made the mistake of so many workers in not giving a concise and clearly-defined description of the various steps to be followed.

* * *

Carcinoma of the Kidney Arising in the Glomeruli. John Hill Abram. *Journal of Pathology and Bacteriology*, February, 1900.

The patient from whom this interesting specimen was obtained presented the following clinical picture:

Wm. D., aged sixteen years, a groom. For eight months he had been suffering with pain in the back. He was emaciated and anemic; enlarged glands in groin, axilla and submaxillary regions;

two tumors on the anterior surface of the sternum; over these the superficial veins were distended; liver enlarged; urine (by catheter) specific gravity 1025, no albumen, no sugar; paresis of lower extremities; knee-jerks present; incontinence of urine and of feces; fresh tumors developed in the ribs; the liver became larger and nodular; the weakness in the legs more marked; knee-jerks no longer obtained; towards the end cough, with blood-stained sputum; thrombosis of left iliac vein, left hydrothorax; death after ten months' illness.

Postmortem.—Numerous growths on ribs; two tumor masses on the anterior surface of the sternum; a large mass on the posterior surface; for about three inches above and below the sixth dorsal vertebra extensive growth in the prevertebral connective tissue, also infiltrating the nerve roots; some patches of growth on the outer surface of the dura mater spinalis; the pleural cavities contain clear fluid; both layers of pleura and lungs show numerous nodules of new growth; liver enlarged, right lobe practically replaced by growth; many nodules in left lobe; spleen normal; kidneys rather large; one or two small nodules; the growth everywhere firm and white.

Histological Examination.—The kidneys, in addition to a slight patchy sclerosis in the cortex, presented most unusual appearance. Throughout the cortex the appearance of the glomeruli was striking. The prominence of these glomeruli was due to deeply-stained epithelium, lining the parietal layer of Bowman's capsule. This epithelial lining consisted of several layers of slender columnar cells, with oval nuclei. A marked feature in the majority of the glomeruli was the normal appearance of the vascular tuft and its epithelial covering. In a few instances the proliferating epithelium completely filled the capsule. In places the growth penetrated the basement membrane and infiltrated the surrounding tissue, and in not a few instances the epithelium of the renal tubules in immediate relationship to the glomeruli was replaced by that of the growth. The large growth of the sternum was found to be an epithelial-celled tumor, made up of somewhat slender cells, packed in irregular alveoli. The central portions showed many necrotic cells, and in parts the stroma had undergone myxomatous degeneration. The nodules in the spinal dura presented a similar structure, and the nerve roots contained many degenerated fibers. The cord itself was practically normal. Abram was able to find but two similar cases in the literature of new growths originating in the glomeruli of the kidney. He believes the growth was primary in the kidney, and says: "The extensive growth in the liver, lungs, etc., as compared with that in the kidney, does not of necessity prove the secondary character of the latter. It seems to me, further, that if the kidney growth were secondary that the epithelial growth would have been found on the vascular tuft as well as on the peripheral part of the capsule."

Hematozoaria of Beri-Beri and Their Pigment. F. Fajardo (Rio de Janeiro). *Centralbl. für Bakteriologie u. Parasitenkunde.* Bd. 24, 1 Abth., seite 558.

After a brief review of the work of other investigators who have described various bacteria as the etiological factors in beri-beri, the author describes the result of a series of careful blood examinations which he carried on at the Marine Hospital at Copacabana. In 1897 he first noticed in the fresh blood of persons suffering with beri-beri small reddish-brown and almost black granules, and always failed to find the cocci and bacilli which other investigators had described in connection with this disease. These granules had the appearance of the free pigment seen in the blood of malaria patients. Later, Fajardo had opportunity of more extended studies, and in a few months had fifty-nine cases under his personal observation, with six autopsies. He claims to have demonstrated the presence of certain parasites in the blood of 86 per cent. of the cases examined, and from the organs of the cases coming to autopsy a few hours after death he was invariably able to obtain the parasite. In every instance examined he found pigment in the blood and viscera.

Description of the Parasite.—In the examination of thin, fresh-blood films obtained by the same method now used in making fresh specimens of blood from suspected malarial patients, Fajardo found in these fresh specimens small globular bodies of a hyaline appearance, which were mostly free in the plasma, and moved through the field with extreme rapidity. They apparently possessed no ameboid movements. He also saw a considerable quantity of free pigment, the granules being of a deep yellow color, or almost black. They frequently adhered to red-blood cells. He was able to stain the parasites by the use of methylene-blue and eosin, Ziehl's dilute fuchsin, the carbolized thionin of Marchoux, and Ehrlich's acid hematoxylin. In the stained preparations he found that the globular parasites were in the plasma and within red-blood corpuscles, and in their general morphology when in this small globular stage, and, as a rule, without pigment, they resembled very much the organism of Texas cattle fever. As the organism increases in size it becomes pigmented, but only from one to three or four granules are present. Although no exact measurements are given in the article, it is clear from the illustrations in the text that even in the pigmented stage these globular forms are extremely small. Larger, ovoid and more or less elongated forms are described, these being almost the length of red-blood corpuscles. Both the globular and ovoid forms may be intra- or extracellular. As a rule, a single parasite is found in a red cell, though occasionally it harbors two, rarely three. Fajardo believes the small globular non-pigmented forms are the very young forms of this organism, and that as these grow they take up pigment. Whether the ovoid and other forms represent another group of the parasite, or older, perhaps degenerate, forms of the

globular forms, he leaves undecided until the subject is more carefully studied. One can hardly see the evidence of any complete life-history having been observed in this parasite, provided it has any points in its life-history resembling the hematozoa of malaria or those seen in birds. No segmenting forms are described, nor any flagellate forms. Although we know from the work of MacCallum that the latter are the forms which carry on fertilization in the hematozoa of birds, and most likely in the malarial parasite; nevertheless these forms have not been observed to my knowledge in the parasites of Texas fever, to which the organism of Fajardo bears much resemblance.

* * *

A Case of Addison's Disease, with Simple Atrophy of the Adrenals. Carlin Philips. *Journal of Experimental Medicine*, Vol. IV, Nos. 5-6.

The author was able to collect but sixteen cases of Addison's disease associated with simple atrophic changes in the adrenal glands. The following is a brief review of his case:

F. N., male, aged forty-two, whose family history is negative. He denied the excessive use of alcohol; no history of syphilis obtained. Fourteen years ago he began to "turn yellow." He was well for seven years after the first appearance of the discoloration. In 1895 he had severe "rheumatic" pains in legs, accompanied by acute bronchitis, loss of flesh, and profound weakness, but he recovered, and was apparently well until June, 1897. Six weeks after admission he had an attack of weakness, diarrhea, and polyuria, without headache or pain in the abdomen. The feet became swollen, and he had pains in the legs.

Examination showed the entire body to be of a yellowish-brown color, deeper in tint where protected from the sun; mucous membrane of tongue and mouth pale, free from pigment; patient very dull; complains of pain in lower extremities; also epigastric pain, and slight cough. Blood examination showed 20 per cent. hemoglobin, 1,490,850 reds; hypoleucocytosis. Later in the course of the disease there were frequent attacks of diarrhea and vomiting. He complained a great deal of pains throughout the abdomen and in the extremities. Ptosis of the right eye also developed. He became extremely weak, the diarrhea and abdominal pain persisting. The course of the temperature was irregular, at no time above 101° F. The urine contained neither sugar nor albumen; specific gravity from 1018 to 1022.

The autopsy revealed a miliary tuberculosis of lungs, tuberculosis of bronchial glands, passive congestion of liver, chronic interstitial pancreatitis, chronic catarrhal enteritis, chronic interstitial nephritis, and simple atrophy of adrenals.

Adrenals.—The left measured two inches in length, three-quarters of an inch in width, and less than one-quarter of an inch in thickness. The right has about the same dimensions. General

appearance normal, except somewhat atrophic; surface smooth and pale; consistence normal; no evidence of tubercular disease.

Microscopical Examination.—The cortical portion showed the most marked change, the medullary being practically normal. The changes in the cortex were also more marked in the zona fasciculata, and consisted in degenerative changes in the gland cells. Their general tubular arrangement was disturbed in many areas, the cells irregular in size and outline, their protoplasm granular, the nuclei small. Altogether the changes seem to have been very slight in this case, and, as the author remarks himself, "it is difficult to believe that the symptoms complex of Addison's disease can be explained by such quantitatively insignificant histological changes as were present in this case. It is well known that certain glandular organs may undergo perversion of function, and present little or no histological existence of disease."

PROGRESS IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

DIPHTHERIA.

It would seem a work of supererogation to again call attention to the antitoxin treatment, now universally regarded as of extreme value by the best men in the medical profession, but as many articles have appeared of late, mostly from pens that wield little or no influence, but able to obtain publicity in some of the medical journals, it will be of interest to quote the figures of the Charity Hospital in Berlin, reported by Slawyk at the meeting of the medical society of the hospital, held on December 21, 1899. A study of the 1163 cases of diphtheria seen in that hospital during the past nine years shows that the mortality, which was 55 per 100 before the appearance of the antidiphtheritic serum, has fallen to 15.4 per 100 since the serum has been generally used, although the general character of the disease itself has remained the same.

The inconveniences attending the use of antitoxin are of slight importance in comparison with the results obtained. These inconveniences were the calling forth of various exanthems, as urticaria, scarlatiniform or rubeolaform eruptions in 16.5 per cent. of the cases. These generally make their appearance on the fourth or fifth day, although occasionally appearing as late as the twenty-third day after the injection, lasting ordinarily three days.

Albuminuria, which was present in 35 per cent. of the cases before the introduction of serum-therapy, is now seen in but 24 per cent. of the cases. There seems to be a definite relationship between the appearance of the exanthems and albuminuria.

The frequency of post-diphtheritis paralysis seems to have been but slightly affected, having been 5.5 per cent. before the introduction of the treatment, and 5.3 per cent. afterwards.

Neisser and Heymann (*Klinische Jahrbucher*, Vol. VII, Part 3) give the results of the bacteriological examinations in diphtheria for the past two years at the Institute of Hygiene at Breslau. During that time 2196 examinations were made, 10 per cent. of which were examinations made later in the course of the disease, the primary examinations also having been made. These later examinations showed that in adults there is a strikingly rapid disappearance of the diphtheria bacilli, while in the case of children they often remain much longer, and are demonstrable in some cases twelve weeks after the onset of the disease, especially in those cases in which there has been nasal diphtheria.

In ninety-three cases, according to the belief of the physicians, scarlet fever was more or less probable, and in only seven of these were diphtheria bacilli found, thus showing once more that scarlet fever as a complication of diphtheria, or the converse, is extremely rare. In all the cases, both positive and negative, the results of the bacteriological examinations harmonized extremely well with the previously-expressed views of the physicians based upon the clinical symptoms of the case.

Especially interesting were the statistics regarding the contraction of the disease by brothers and sisters. Only in one-third of the families in which there were several children did any of the brothers or sisters contract diphtheria, and in these cases 54 per cent. of the children were affected.

As to the method of administering the antitoxin, Musser (*University Medical Magazine*, March, 1900) contributes an interesting article. After reviewing the results of the antitoxin treatment and the marked diminution of mortality produced thereby, he discusses the dosage employed by various well-known clinicians. Thus, Monti recommends 1000 units at once in young children, to be repeated every twenty-four hours if the symptoms are aggravated or stationary, while in severe cases he recommends an initial dose of 1500 to 2000 units, or, if the disease is also nasal, 2000 to 3000 units. In laryngeal cases he gives 1500 units, and in all these cases the doses are to be repeated in twelve hours if the symptoms do not abate.

The doses recommended by the committee of the American Pediatric Society are: An initial dose of 1500 to 2000 units in all severe cases, and in laryngeal cases, in children over two years of age, which is to be repeated in eighteen or twenty-four hours, with a third dose if necessary. For children under two years and in mild cases the dosage is 1000 units.

Baginsky gives children up to two years old, who are seen early in the disease (first or second day), and for mild cases, 600 units, while in older children, with a mild attack of the disease, the initial dose should be 1000 units. In both these cases there is to be a repetition of the dose, if needed, within twenty-four hours. For older children, with very severe symptoms, 3000 units should be given, the second dose in all cases being 600 to 1000 units.

The English never give as an initial dose less than 6000 units, and the amount used in any one case generally varies between 20,000 and 50,000 units. As Musser and Baginsky state, this leads to the strong suspicion that the serum has an extremely low standard of strength.

Musser, himself, recommends the following method: "For children from naught to six or eight years the initial dose is 500 immunizing units, to be repeated at intervals of six hours if the fever does not fall, if the strength of the patient does not improve, or if the local manifestations are spreading. For children over eight years 1000 immunizing units are given as an initial dose, and this is repeated at intervals of eight to twelve hours as needed."

According to Musser the only disadvantage of this method is the pain caused by the successive injections, while the advantages are the freedom from the urticaria and other uncomfortable general symptoms that seem to occur much more commonly after larger dosing. In support of this Musser reports thirteen cases from his private practice, all of whom recovered under his treatment without any unpleasant complications.

DIPHTHERIA BACILLI IN THE MOUTHS OF HEALTHY PERSONS.

There is so much difference of opinion regarding the presence of diphtheria bacilli in the mouths of perfectly healthy individuals and of those attending patients sick with this disease that the work of Kober (*Zeitschrift für Hygiene und Infektions-krankheiten*, 1899, Vol. XXXI, p. 433), carried on in the laboratory of Professor Flügge, should be very gratefully received. These researches were carried on upon 128 persons who had come in contact with diphtheritics and upon 600 persons who had not come in contact with those suffering from this disease.

In the cases in which the bacilli of Loeffler were found the diagnosis was based upon (1) growth on blood serum and microscopic examination at the end of six hours, (2) the double coloration of Neisser of cultures from nine to eighteen hours old, (3) testing the acidity, and (4) inoculation of guinea-pigs.

The results which Kober reached showed that the ideas usually held regarding the frequency of diphtheria bacilli in the mouths of healthy individuals are much exaggerated, for while the view has been generally held that the bacilli are present in the mouths of 7 per cent. of healthy individuals, Kober found them only in fifteen of his 600 cases examined, or 2.5 per cent. In ten of these fifteen cases the bacilli were not virulent. A minute inquiry showed that ten of these fifteen had recently come in contact with a focus of diphtheria, so that in reality the diphtheria bacillus is met with in the mouths of only .83 per cent. of healthy persons who have not come in contact with diphtheritics. In the series of 123 cases that had come in contact with diphtheritics Kober found that in only ten, or in 8 per cent. of the cases, were the bacilli to be found, although it has generally been supposed that this was so in 18.8 per cent. of all such cases. In these ten cases the bacilli were virulent.

THE PSEUDO-DIPHTHERIA BACILLUS.

Ustredt (*Norsk Mag. for Lägevid.*, 1899, No. 6) has carried on a series of studies to show the difference between the diphtheria bacillus and the pseudo-diphtheria bacillus, in which he comes to the following conclusions: (1) The cultures of each are the same; (2) microscopically the pseudo-bacilli are much shorter; (3) the true diphtheria bacillus renders bouillon acid, the other does not; (4) in animal experiments the long bacilli are more or less virulent, the short are constantly non-virulent; (5) on blood serum the form of each kind remains constant, and they cannot be converted one into the other; (6) diphtheria serum is useless for the differential diagnosis; (7) those who carry the short bacilli in their mouths run no danger themselves, and are not a source of danger to others.

COMPLICATIONS OF DIPHTHERIA.

Barlow (*Lancet*, 1898, December 3) reports a case of hemorrhagic nephritis appearing upon the third day of a case of diphtheria, in which on the twenty-first day of the disease bacilli were found in the urine which strongly resembled diphtheria bacilli, showing only the most insignificant differences. According to Barlow, diphtheritic nephritis is extremely rare, occurring in but .77 per cent. of 15,000 cases analyzed during 1895, 1896 and 1897, and in the last-named year (1897) in only .34 per cent. of the cases, while albuminuria was present in 45 per cent. of the cases.

Woollacott (*Lancet*, 1899, May 6) reports three cases of cardiac thrombosis in diphtheria. These three cases of intracardiac thrombosis were the only ones of such nature found in 200 autopsies made upon patients who had died of diphtheria. All three cases were in children between seven and nine years of age, in two of whom there was an ulcerative process upon the uvula and tonsils, while the third case was one of diphtheria complicated by scarlatina.

In the 200 cases analyzed, myocardial degeneration was frequently found, and occasionally dilatation of the heart. Since the introduction of the antitoxin treatment of diphtheria, there has been a decided change in the relative frequency of the various causes of death, although, of course, the absolute percentage of deaths has been markedly decreased. Death due to extension of the diphtheritic process into the lower respiratory tract and lungs has become relatively much less common, while, on the other hand, gradual failure of the heart, evidenced by weak pulse and vomiting, has become relatively a more frequent cause of death. Pain is usually absent, but in the three cases of cardiac thrombosis reported there was pain so intense as to remind one of angina pectoris. This appeared, however, to depend more upon the cardiac dilatation than upon the thrombosis. The thrombi led to no clinical signs, and death came gradually in every case.

Renaut (*La Presse Medicale*, 1899, July 29), from a series of experiments in which the diphtheria toxins were injected into

animals and the cardiac changes carefully studied, finds that the lesions of this experimentally-provoked diphtheria and the cardiac lesions found at the autopsies of infants and young adults dead of diphtheria were practically the same. The early lesions consist in the development of a granular degeneration of the muscle fibers and loss of the transverse striation, with more or less leucocytic infiltration and some swelling of the smooth muscle coat of the arteries and arterioles, which takes on a colloid appearance. Later the parenchymatous changes lead to more or less disintegration of the muscle fibers and vacuolization, *i. e.*, the whole process is a typical parenchymatous myocarditis.

Vallagussa and Ravelletti (*Annali d'igiene sperimentale*, 1899, page 118) have endeavored to discover by means of animal experimentation the causes predisposing to the invasion by the diphtheria bacillus. According to them the principal factors are poor and insufficient food, muscular fatigue, humidity, poor ventilation, darkness, crowding; in other words, conditions usually found among the very poor. When animals were submitted to any of these influences they were found to be less resistant than animals kept under good hygienic conditions, they died more rapidly and presented more serious lesions. The prolonged use of alcohol and of coffee, the injection of filtered cultures of saprogenic micro-organisms, and of streptococci and staphylococci, rendered the animals more sensitive to the diphtheria poison. It was found that the bacillus of Loeffler in symbiosis with either streptococcus or staphylococcus produced a poison of greater toxicity than could be obtained from the diphtheria bacillus alone.

MEASLES.

The value of Koplik's signs in the early diagnosis of measles has been recently again brought before us by Widowitz (*Wiener Klinische Wochenschrift*, 1899, No. 37) from the results obtained in an epidemic at Graz, where 158 cases were examined for the spots to which Koplik first called the attention of the general medical profession. From his observations, Widowitz concluded that these spots are present in the majority of cases of measles, in many cases before, but in most cases simultaneously with the appearance of the other prodromal symptoms. They were, however, seen exceptionally in cases of German measles (Rötheln), catarrhal laryngitis and rhinitis, and follicular tonsillitis. Widowitz therefore regards them as a valuable, but *not* an absolute sign of the presence of measles.

The ear complications of measles are carefully considered by Heymann (*Deutsches Archiv. fur Klin. Medicine*, Vol. LXIII, parts 3 and 4), who has drawn his conclusion not only from his own cases, but also from a careful survey of the literature. These conclusions are as follows: Otitis externa rarely appears alone, but is more frequently a complication of the middle ear inflammation

which must be regarded as an almost constant complication of measles. This middle ear inflammation is the analogue of the conjunctivitis and laryngitis, usually runs its course without symptoms, and heals spontaneously by absorption. Occasionally, however, it leads to pus formation and perforation of the ear drum, these severe cases almost always making their appearance about the time of desquamation.

If treated with care, a cure is rapidly obtained in these cases; while if carelessly treated they are likely to become chronic and to be associated with serious disturbances of hearing.

Labyrinthine affections may be brought about either by extension of the inflammation from the middle ear, or by metastasis through the blood current, and lead almost always to complete deafness. Fortunately they are extremely rare.

PROGRESS IN SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

SPLENECTOMY.

Jonnesco, M. (Bucharest). "La splénectomie; étude clinique et experimentale." (*Revue de chirurgie*, Vol. XX, 1899, p. 593.)

Since 1896 Jonnesco has done twenty-nine extirpations of the spleen; once for hydatid cyst, twenty-eight times for malarial enlargement of the spleen (splénomégalie malarique). Ten times the general condition was relatively good, and the operative indication was chiefly the inefficiency of the medical treatment and the insupportable pain caused by the tumor; eight cures, two deaths.

Twelve times the patients were very anemic; seven cures, five deaths. Five times the cachexia was very pronounced; four cures, one death. There were two cases of leucocythemia; no cures, two deaths.

Among the accompanying symptoms important to notice, especially from the point of view of the operative indications and of prognosis, were edema of the lower limbs (four cases, three cures), ascites (four cases, one cure), hypertrophic cirrhosis of the liver (three cases, two cures), atrophic cirrhosis of the liver (two cases, two deaths), pulmonary tuberculosis (one case, one cure), pleuro-peritonitic tuberculosis (one case, one death).

The ages of those operated on were without influence on the results, and varied between fourteen and sixty-two years.

The weight of the spleens taken out varied between 857 grammes and 5 kilo. 750 grammes. Size is without influence on the operative result. The spleens were movable (displaceable) in twenty-two cases; fourteen cures, eight deaths. Some adhesions

to the deep parietal wall or the viscera existed in five cases; one cure, one death. Three times the pleura was opened and sutured; one cure, two deaths. The most frequent post-operative complication is intense pulmonary congestion; seven cases with three cures, four deaths.

The causes of death have been: Secondary hemorrhage (two cases, five and ten hours after operation); intense pulmonary congestion (one case on the third day); hemothorax following the opening of the pleura (one case on the fifth day); spontaneous opening of the abdominal wall, protrusion of the intestine and general peritonitis (death on the fifth day); general bronchitis, pneumonia, suppurating pericarditis (death on the sixth day); exhaustion (death on the tenth day, after the operation had healed); atrophic cirrhosis, degeneration of the kidneys, etc.; tuberculous pleuro-peritonitis (died on the fifteenth day); suppuration (focus limited to the level of the pedicle of the spleen, opened in pleura, pleurisy, degeneration of the heart and of the liver, died on the fifteenth day); adhesion of a knuckle of intestine to the abdominal wall, occlusion of the intestine, artificial anus (died of inanition on the sixteenth day).

In order to avoid intervention in cases where the spleen is very adherent and the danger is undoubted, M. Jonnesco has tried experimental means of obtaining physiological abolition of the spleen and its atrophy by ligating its vascular pedicle. His first results were communicated to the Congress of Surgeons in 1897. Carrière and Vanverts have just published the results of their researches, which are quite in accord with his on certain points, while differing on others.

The experiments done by his assistants, Balassco and Bruckner, in his institution have proved:

1st. That complete ligation of the pedicle of the spleen leads to rapid gangrene of the organ and death of the animal in from fifteen to fifty hours.

2d. That ligation of the artery, of the vein, or of both these vessels at the same time, leads to slight atrophy of the spleen, but it continues even then to live and functionate.

3d. The ligation of a large part of the vessels leads to a rapid atrophy, with splenic cirrhosis.

4th. The adhesions formed between the spleen and the abdominal wall are sufficient to supply nourishment for the life of the organ. After allowing these adhesions to form, they have been able to cut completely all the afferent and efferent vessels of the organ without its becoming gangrenous. The spleen continues to live, but the progress of atrophy is rapid, and its functions fail.

5th. The spleen does not normally contain organisms.

6th. After complete ligation of the vessels the spleen and the

sero-bloody fluid of the peritoneum do not contain organisms in the first twenty-four hours. Later on colon bacilli are found to come from the cavities (intestine and stomach) to which the spleen has become adherent.

7th. The death of the animal in the cases in which cultures remain negative is due to the aseptic decomposition of the organ and to intoxication of the body.

From these experiments it results that one cannot hope for atrophy of the spleen by severing its vessels when there are adhesions.

* * *

FLOATING CARTILAGE.

BENNETT. "A Clinical Lecture Upon Internal Derangements of the Knee-joint, based upon a Series of Two Hundred Cases." (*Lancet*, January 6, 1900.)

Bennett draws his conclusions from 200 cases, including only those presenting the characteristic symptoms, viz., sudden pain, with or without a sensation of something having slipped out of place in the joint, complete fixation or limitation of the power of extension and flexion, followed by effusion into the joint, with tenderness over one or other semilunar cartilage.

He believes that those cases in which the displaced semilunar cartilage can be palpated are very few, and that the fullness often felt along the line of cartilage is merely swelling from blood extravasation, with or without inflammation. The same symptoms may be due to:

1st. Displacement of semilunar cartilage;

2d. Nipping of folds or shreds of synovial membrane between the ends of bones;

3d. Loose or pedunculated bodies in the joint.

To these commonly-recognized causes the author adds:

4th. The bruising at the peripheral edge of a semilunar cartilage and its attachments, without displacement or, necessarily, loosening, the immediate result of the lesion being a local effusion of blood (subsequently reinforced by a certain amount of inflammatory exudation), a portion of which, insinuating itself between the bone ends, acts as a foreign body.

If the foreign substance be a portion of semilunar cartilage, loose body or fold of synovial membrane, the symptoms are very pronounced, but disappear after reduction has been effected, the movements of the joint being at once recovered.

To the fourth class belong the milder and the majority of cases. *In these full extension of the knee is not possible by active or passive motion.* They invariably completely recover by rest treatment. The important point to note in their progress is that the recovery

of complete extension is gradual, being due to the slow absorption of the effused products.

Treatment is divided into:

1st. The treatment by temporary rest, massage, and exercise.

2d. Treatment by the use of apparatus.

3d. Operative treatment.

1st. After reduction, complete temporary rest by fixation of the joint in a light splint, and the continual application of some hot lotion. Nothing militates against a successful outcome so much as exercise, while, on the other hand, too long rest is bad. There should be no motion of the joint as long as there is any effusion, though massage must be administered, as it obviates the tendency to flaccidity of the capsule of the joint, which is such a fruitful cause of failure in these cases. Avoid rotatory movement of the joint. The gluteal muscles and the tensor fasciae femoris must be massaged because of their direct influence on the strength of the capsule of the knee.

2d. The use of apparatus is to be condemned except in (a) cases in which the rational treatment cannot be carried out; (b) cases in which the rational treatment fails to restore the normal tension of the knee capsule, or those in which abnormal lateral mobility remains to any marked extent in spite of the treatment; (c) cases in which recurrent attacks of semilunar displacement have occurred frequently, operation being rejected.

3d. Under any circumstances operation of any kind is unnecessary until the other treatment has failed, which is seldom, and for the most part limited to the removal of pedunculated bodies and synovial folds.

The semilunar cartilages will rarely require operative interference.

[Such views are hardly acceptable to American surgeons.]

* * *

DISLOCATIONS OF SHOULDER AND HIP.

Stimson, Lewis A. "An Easy Method of Reducing Dislocations of the Shoulder and Hip." (*Medical Record*, March 3, 1900.

The patient is placed upon a canvas cot, with the injured arm hanging through a round hole made in the middle and about eighteen inches from the end. The cot is raised to a sufficient height from the floor, and a ten-pound weight is fastened to the wrist of the dependent arm. Reduction is accomplished in a few minutes and without pain. It has been tried in ten cases, and has never failed, six minutes being the longest time required.

In dorsal dislocations of the hip the patient is placed prone upon a table, with thighs extending beyond its end. The uninjured thigh is held horizontal, to prevent tilting of the pelvis. With the

injured thigh vertical, and leg at a right angle to it, the surgeon grasps the ankle and gently moves it from side to side, perhaps making gentle pressure downward at the knee. If relaxation is slow to appear, a sand-bag weighing five or ten pounds may be placed in the popliteal space to produce more traction. This simple procedure has succeeded in reducing the dislocation in more than four-fifths of the cases, and often without anesthesia. In the two cases failing by this method, reduction was accomplished by traction in a line midway between right-angled flexion and full extension. In these cases the bone had probably left the socket at a higher point.

* * *

ETHYL CHLORIDE AS AN ADJUVANT TO ETHER ANESTHESIA.

TUTTLE, JAMES P. "Experiences with Ethyl Chloride in General Anesthesia." (*Jour. Am. Med. Assoc.*, March 24, 1900.)

Tuttle has used ethyl chloride previous to giving ether forty times. He employs a rather thick Esmarck chloroform inhaler, on the inside of which the ethyl chloride is sprayed from the ordinary tube with a slightly larger hole than usual. After three minutes, or as soon as the patient is insensible to the stick of a pin, ether on the Ormsby inhaler is substituted.

The advantages claimed are:

1. Easy and rapid anesthetization (three and one-half to seven minutes).
2. Less disagreeable after-effects.
3. Simplicity of administration.

* * *

MOVABLE KIDNEY SIMULATING GALL STONES.

MACLAGAN and TREVES. "Three Cases in which Movable Kidney Produced All the Symptoms of Gall Stones." (*Lancet*, January 6, 1900.)

Three cases are reported, one woman, aged thirty-five, and two, aged thirty-four years. In one case the kidney probably pressed on the common duct, while in the other two it was found pressing against the cystic duct.

All the cases were operated on for gall stones, the gall bladder being opened before the true condition was discovered.

The abdominal wound was then closed, the kidney exposed through the lumbar incision and sutured down.

The first case is reported upon in six weeks, and again at an indefinite later date. The second is reported upon two and one-half years after operation, and the third four months after. In all three cases perfect cures resulted.

"The point of these three cases, the point which it is especially desired to bring before the profession, is that all the symptoms of gall stones—attacks of hepatic colic, followed by jaundice—may

be produced by pressure on the bile duct by a displaced right kidney. In each of these three cases the symptoms were exactly those produced by gall stones, and that the symptoms were due to that cause was the diagnosis formed by all the physicians and surgeons who saw them. In not one of them was a gall stone found. In each the symptoms were due to the same cause—the pressure on the bile ducts by a displaced kidney, a pressure which was, from the nature of the disturbing cause, not continuous, but occasional and intermitting, so mimicking exactly what occurs in gall stones. In Cases 1 and 3 the pressure was on the cystic duct, and the jaundice, therefore, was less marked, and the pain probably less severe. In Case 2 the pressure was on the common duct, and the jaundice more marked in consequence. It is to be noted, too, that this patient was said once to have passed a gall stone, which was found in the stool."

* * *

PERINEAL PROSTATECTOMY.

FREYER. "New Method of Performing Perineal Prostatectomy." (*British Med. Jour.*, March 24, 1900.)

After mentioning the different methods of dealing with the hypertrophied prostate, the author details one used by himself, but advises that it is only applicable in the lateral lobe enlargements, and is contraindicated in stout patients.

Perineal urethrotomy is first performed, the urethra being divided well posteriorly and the intravesical prostatic condition investigated, with the finger passed through the wound into the bladder. A crescentic incision, anterior to the rectum and well around it, is now made, the rectum drawn backward and the prostatic capsule incised.

The finger passed through the urethra into the bladder now draws the prostate down into the wound, and also acts as a guide for the enucleating process, which is done with the finger of the other hand and scissors. Tearing into the bladder or prostatic urethra is guarded against by the finger in the bladder.

The wound is packed and a large tube passed from the perineal wound through the urethra into the bladder and left for about six days.

[In perineal enucleations of the prostate it is necessary to have some means of forcing the prostate into the perineal wound, and the suprapubic incision is chiefly important for this purpose. The method proposed by Freyer can hardly be applicable to cases with marked increase of the prostatic urethral length, as the finger cannot reach the bladder. Another objection is that the perineal wound is generally smaller than is desirable, and the presence of another hand in the wound would seem to be a great hindrance. For moderate bilateral enlargements, however, it seems a valuable procedure.]

THE CLINICAL SOCIETY OF MARYLAND.

MEETING HELD FRIDAY, MARCH 16, 1900.

THE meeting was called to order by the president, Dr. James M. Craighill, in the chair.

SYPHILIS—EXHIBITION OF PATHOLOGICAL SPECIMENS.

Dr. William R. Stokes: I have several specimens of gummata of various organs, which I will describe briefly. Of course, you know that one of the lesions of syphilis is the formation of what is called infectious granulomata, or typical gumma. The gumma of syphilis to the naked eye looks like a large tubercle. It is simply a caseous mass, surrounded by a capsule of connective tissue. This is a gumma of the testicle, developed in the parenchyma of the organ. I also have here a specimen showing gummata all through the tissue of the liver. You can see, looking over the cut section of the liver, numerous yellow gummata, varying in size from a pinhead to an almond, and you can see that each of these areas is surrounded by a capsule of connective tissue. I also have some examples of other end effects of syphilis. Although we do not know the cause of syphilis, we can reason from analogy furnished by experiments with other organisms. We know that the staphylococcus can cause both focal and diffuse lesions. The focal lesion of the staphylococcus would be a simple abscess, but from the staphylococci a material may be separated which will produce diffuse lesions in animals. You can inject the soluble poison into animals and set up chronic interstitial nephritis, so that even such a distinctly focal organism as the staphylococcus can produce diffuse lesions. In regard to syphilis, it is hardly proved yet that Lustgarten's bacillus is the cause, but it seems to produce certain materials which cause diffuse lesions, and I have some examples of that effect here.

Here are two specimens of arterial sclerosis. This chronic endarteritis begins with thickening in the intima, and the plaques formed become hard and even calcareous. These are examples of late endarteritis. This would hardly be recognized as an aorta—just a firm, bony mass. The subject from which the chancre was obtained also shows an interesting aneurism. This aneurism ruptured, and this solid material surrounding it is simply the blood which left the aorta and which was in the cavity. The aneurism is just below the diaphragm where the celiac axis comes off. The changes in this man's blood-vessels very probably resulted from the syphilis, and by weakening of the arterial walls the aneurism was formed.

I have here another remarkable specimen showing the end effects of syphilis. You would hardly believe that this is the stomach of an adult, but it is the stomach of a man of twenty-five years of age, who gave a definite history of syphilis. He had symptoms of obstruction of the pylorus, and at autopsy we found this remnant of a stomach. It holds about one-tenth of what the normal stomach should. It is a remarkable case of chronic hypertrophic gastritis. There is immense thickening of the pyloric orifice, and almost complete occlusion.

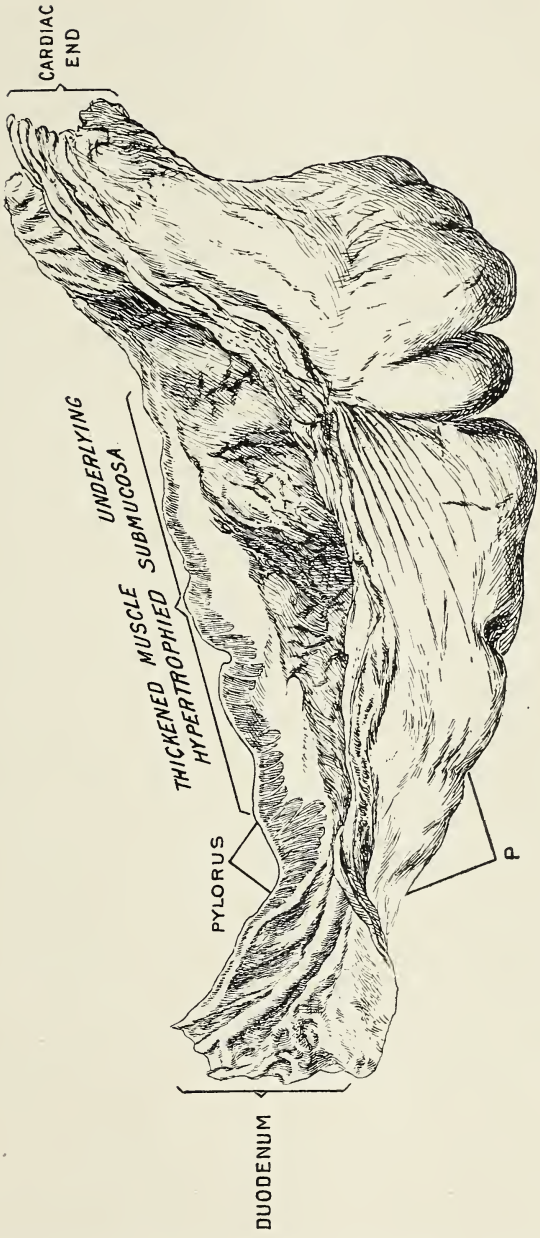

Fig. 3 *Actual size and configuration of Stomach opened along the lesser curvature from esophagus to Duodenum.*

Here is another specimen which I should like to show in connection with this subject of syphilis. It is an example of apoplexy, showing a large hemorrhage in the left ventricle. The specimen comes from an in-

teresting case in which Dr. Craighill was interested, and he may tell us something about its history. At autopsy this hypertrophied and somewhat dilated heart was found. There are no decided lesions of the valves. The kidney, too, is interesting. The man had stricture of the urethra for a long time, had been operated on, had a perineal opening, and the urethral orifice was entirely closed. The ureters and pelves of the kidneys were dilated, and great pressure on the ureters might have caused this granular kidney, and the granular kidney might, in turn, have caused hypertrophy of the heart.

Dr. Robert Reuling: One point about this question is extremely interesting—the difference in the action of the toxins of syphilis. It is well known now that several disease organisms possess two distinct toxins. Recently Ehrlich has described in tetanus two distinct poisons—one which acts on the red cells and causes rapid anemia, and another which is a specific poison to the nervous system. The first he calls tetano-lysin, and the second tetano-spasm poison. Still more recently two poisons have been isolated in diptheria—a specific poison to the nervous system, and one which acts on the parenchyma of the different organs. So it seems that we have two such toxins in syphilis—one a specific poison which produces changes in the nervous system, leading to tabes, etc., and another which produces the gummata, and probably the diffuse changes in the connective tissues of the blood-vessels and general organs. Not only do the histological changes suggest such a condition, but the treatment also suggests that these toxins differ. We know how the gummata and other lesions caused by syphilis improve when treated with iodide of potassium, and we are equally familiar with the bad results of this treatment in the early cases of tabes.

Dr. Craighill: Concerning the patient Dr. Stokes has spoken of with the heart and kidney lesions, I would say that he came into the University hospital through the out-patient department. He had been to the Dispensary very often, and when his condition would become serious he would enter the hospital. He had a mitral regurgitation, and he would become waterlogged, as he expressed it. Then he would go into the hospital for two or three weeks and be drained by diuretics and salines. At last he came in in a worse condition than usual. He told me that he had weighed just before he came in, and that he had forty pounds of water in him. He looked as though that were true. We took him into Dr. Atkinson's clinic and showed him to the class, and showed him again a week later, when this condition had subsided. He was getting well, walking around the wards, when he suddenly fell over, and in a few minutes was dead. Whether he had a syphilis or not I could not say without looking up his history.

1. RADICAL OPERATION FOR CARCINOMA OF CERVIX UTERI.
2. AN UNUSUAL MYOMECTOMY.

Dr. W. W. Russell: Probably no disease in gynecology has given more discouraging results than the operative treatment for carcinoma of the cervix. The operative treatment for the cure of cancer of the uterus has been a very interesting study. At first the disease was treated below by escharotics. The next step was amputation of the cervix, and that was

found unsatisfactory. Then vaginal hysterectomy followed, which also proved unsatisfactory. Finally, the abdominal method was adopted. That has gone through several stages up to the combined method, abdominal and vaginal, which, about three or four years ago, Dr. Clark of Baltimore and Dr. Reese of Chicago brought out simultaneously. The trouble has been to get outside of the diseased area. That must be done to treat the carcinoma successfully. Carcinoma of the cervix is much more difficult to treat than carcinoma of the body, because it comes in contact so quickly with the lymphatics.

The operation to which I wish to call your attention is one devised by Dr. Winter of Pittsburg. It was brought out nearly two years ago, and has not attracted much attention, but it seems to me to be such a valuable procedure that I thought it worth while to call attention to its value.

In the Clark-Reese operation much was accomplished. They were able to get the pelvic glands and, to a certain extent, the connective tissue of the broad ligaments. But the operation did not avoid two or three dangers. The first is danger of metastasis. That was not avoided by the Clark operation, because the vagina was opened very well along its course. The next important point is the danger of implantation of the cells on the fresh exposed tissue in the course of operation. Winter called attention to this three or four years ago in a paper in which he claimed that 50 per cent. of recurrences are due to implantation of the cells in the fresh tissue. A third respect in which Winter's plan is found better than the Clark operation is that we are able to get more of the connective tissue in the broad ligaments. I will go briefly over the technique of this operation: The usual abdominal incision, then dissection of the broad ligaments, reaching the ovarian artery on both sides, controlling the circulation in the upper portion of the uterus and in the tubes and broad ligaments. Then the question of avoiding the ureter is a very important point. As soon as the broad ligament is cut through it shows the point where the ureter just enters the connective tissue. From that point one dissects up along the pelvic wall, exposing the ureter in its whole course, and dissecting it out down to the base of the bladder, so that you have the ureters throughout the operation in complete view. As soon as this is accomplished the bladder is dissected down and loosened from the anterior face of the uterus. Then we have the ureters and the bladder out of the field, and the operation proceeds to the base of the broad ligaments. If the uterus is put on tension this tissue is raised up in the pelvis, and by careful dissection one can dissect out the uterine artery and tie it at its exit from the ligament. This is done on both sides. The connective tissue is cut down to the vaginal field on either side, and the vagina is dissected off from the surrounding tissue as far down as you chose. The vagina has not been opened and the field not contaminated in the least. The operation from above is thus complete. The abdomen is closed from above, the patient put in lithotomy position, and the operation completed by incision in the vagina. The hemorrhage is controlled from above. This avoids the danger of contamination from the sloughing carcinoma and from the implantation of carcinoma cells. The ureters are safely out of the way during the whole operation. I think Dr. Winter deserves a great deal of credit for this operation. This case is the

first we have done in that way, and although attended by a considerable difficulty, it was completed in about two hours, and as far as we can tell by the sections, we got entirely beyond the growth.

The other case is interesting from its size, and shows what can be accomplished by conservative treatment. This occurred in a young woman twenty-five years of age, unmarried, and perfectly healthy in every other way, and very anxious to retain her sexual organs. This specimen weighed about ten pounds when taken out. It has been thought that a myomectomy was impossible where the tumor had attained the size of a six months' pregnancy. In this case it was perfectly successful. The operation was prolonged, but the girl has made a perfect recovery and is in perfect health. One interesting point was the question of restoring the uterus to its normal size. I could not close the incision as it was, because the wound was very deep, so I did a plastic operation on the uterus, and cut this piece entirely away from the posterior wall, leaving the uterus about twice its normal size, whereas it had been six or seven times that size. The hemorrhage was controlled without difficulty.

Dr. H. O. Reik: "Mastoiditis—A Report of Some Interesting Cases." — (See page 235).

Dr. Herbert Harlan: "Report of an Interesting Case of Mastoiditis." — (See page 241).

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD MARCH 19, 1900.

THE meeting was called to order by the president, Dr. Thomas.

IDIOPATHIC DILATATION OF THE COLON.

Dr. T. B. Futcher exhibited a child, four years of age, born in Massachusetts, and who seemed perfectly normal during the first year of his life. When about one year of age the abdomen became very large and soon began to cause comment by the neighbors. Periods of constipation lasting for six or seven days would be followed by severe attacks of diarrhea. At present there is a striking distension of the abdomen, rendering it pendulous, particularly above the level of the umbilicus. No definite peristalsis could be made out. Under treatment by irrigation the child seems quite comfortable, and the abdomen is now a little softer than on admission. No fecal concretions could be felt by palpation.

Dr. Futcher described the case as one of idiopathic dilatation of the colon. He divided colon dilatations into three classes, placing in the first those cases in which there is a simple gas distension, in the second those in which there is a distension from retained contents, and in the third the so-called idiopathic cases. He stated that not much could be done in the way of treatment in this last class of cases, and that they usually terminate fatally. Surgical intervention has been advised, and may consist either in excision of a part of the colon or in the operation for artificial anus, to prevent accumulation in the involved part of the intestine.

Dr. Futcher also called attention to a similar case that had been treated in the hospital recently. A colored boy, fourteen years of age,

whose abdomen had been greatly distended for six years, gave the history of alternate constipation and diarrhea, and when he entered the hospital had not had a movement for two weeks. The operation of excision was performed in this case, but the boy died of general peritonitis. The colon, which was very largely dilated, measuring 49 cm. in its greatest circumference, contained about eight quarts of semi-fluid feces.

Dr. Thayer remarked that this condition should be borne in mind when examining small children with "ballooned abdomens," because they might simulate the more alarming condition of obstruction. He referred to a case seen in the hospital eight years ago that presented such symptoms, and where the correct diagnosis was made only after an operation for obstruction had been considered. The boy was operated on later, and an artificial anus made. His condition improved very much, and they intended to perform a second operation for the closing of this wound, but the boy disappeared from observation.

A CASE OF GONORRHEAL ENDOCARDITIS.

Dr. Dabney related the clinical history of this case. The patient, a colored woman, was confined in January, and was brought to the hospital February 12 in an advanced stage of puerperal septicemia, with ulcerative endocarditis. The history seemed to show infection at the time of labor. She died the day after admission.

Dr. Harris reported the pathological findings, which showed a vegetative ulcerative endocarditis involving the tricuspid pulmonary and aortic valves. Bacteriological investigation of the vegetations produced cultures of the gonococcus.

Dr. Thayer said that he had been impressed some time ago by the relative frequency of endocarditis following gonorrhea, and during the last year he had seen two cases directly following this disease. The first was a traveling salesman, twenty-one years of age, who contracted gonorrhea the latter part of December, and began to have chills, fever and sweating several weeks later. He had previously been a healthy man. In February the right knee and ankle became involved, and he finally died of endocarditis. In the second case, a man thirty years of age, the endocarditis followed within a few weeks of the first attack of gonorrhea. Autopsy showed an ulcerative endocarditis of the mitral valve. Cultures only showed the presence of streptococci, but Dr. Thayer explained that we shall have to distinguish gonorrheal from gonococcal endocarditis, inasmuch as there may be a pure gonorrheal infection, or a gonorrheal infection originally, followed by a mixed infection, which may or may not outgrow the gonorrheal infection; or, lastly, we may have a purely secondary infection.

Dr. Barker emphasized these last statements of Dr. Thayer, and said he feared we should now have a number of cases reported as gonorrheal endocarditis which have nothing to do with gonococci. He referred to the difficulties in the way of a definite diagnosis, and stated that while the presence of the gonococcus in the vegetations does not prove the latter to be gonorrheal in origin, neither does the absence of the gonococcus from a case of endocarditis prove positively that the organism was not the cause of the infection. Among the characteristic features of this dis-

ease he described the massive nature of the vegetations and their occurrence on the right side of the heart much more frequently than occurs with vegetations in other forms of endocarditis.

REPORT OF GYNECOLOGICAL CASES.

Dr. Miller: Case 1. Acute Gonorrheal Peritonitis.—The patient, a young married woman, had a general peritonitis, due to infection through the tubes. Dr. Kelly performed an operation, removing both tubes, and the patient recovered. This woman had only been married two months, and her husband gave a history of having been under treatment two years for gonorrhea. He had been pronounced cured by a competent physician after repeated examinations of the slight discharge that still existed.

Case 2. Ovarian Abscess, with General Peritonitis.—In this case there was general peritonitis, with pockets of pus in either flank and free pus in the peritoneal cavity. At the operation it was found necessary to remove the uterus and both tubes. There was a large abscess of the tubes and ovary of the left side, which contained a yellowish-brown offensive pus. The right ovary was cystic and adherent.

Case 3. Suppurative Ovarian Cyst, with Formation of Gas in the Cyst.—The patient was a woman of forty-three, and had been admitted to the hospital ten years previously, but refused operation for the cyst, and was discharged. When she returned the abdomen was quite tympanitic; a tumor mass could be made out in the pelvis and extending up into the abdominal cavity. Her condition was that of sepsis. When at the operation an incision was made into the cyst wall there was an escape of gas, and a very offensive brownish necrotic material containing some pus. The gas bacillus was not found, but later cultures showed the presence of colon bacilli.

MEETING HELD APRIL 2, 1900.

The meeting was called to order by the president, Dr. H. M. Thomas, who exhibited a case of Duchenne's paralysis.

Dr. Thomas stated that obstetrical paralysis in children is not an uncommon occurrence, but it is very unusual for the mother to be affected at the same time. Very little has been written upon this subject, particularly in the obstetrical books, and several prominent obstetricians are quoted as having said that they had never seen such a case. This is the third case that has come under Dr. Thomas' observation within the past year. The patient was twenty-five years of age, and was delivered of her first child eight weeks ago. The labor was a protracted one, requiring the use of forceps, and when the mother recovered from anesthesia she complained of extreme pains in the limbs, and this was followed by paralysis of both legs. Electrical examination showed that the muscles supplied by the external popliteal nerve had undergone a partial degeneration. Her improvement was steady, but rather more rapid on the right than the left side. On attempting to walk she exhibits a double foot drop, and swings herself at every step, so as to bring the center of gravity over the leg that is on the ground. Dr. Thomas had not seen any account of other cases showing bilateral affection of the mother's legs.

There has been some difference of opinion as to the etiology of these cases, but Dr. Thomas thought that in this case at least there was little

doubt that the paralysis was due to traumatism. One possible explanation of the traumatic origin in these cases is found in the anatomical arrangement of the nerves. In almost all of the cases the paralysis has existed in the muscles supplied by the external popliteal nerve, the deeper branches of which pass right over the brim of the true pelvis, against the bone, and are thus exposed to injury from pressure in protracted labor cases. In the case reported the mother was a small woman, but the child weighed between twelve and thirteen pounds, and there was considerable disproportion between the size of the pelvic outlet and the child's head.

Dr. A. T. Cabot of Boston exhibited a set of Dr. Bigelow's instruments, and described his operation of litholepaxy for the crushing of stone in the bladder. He considers it much safer than the suprapubic operation, and his results have been excellent.

Dr. Halsted and *Dr. Finney*, in discussing the subject, both endorsed the operation and congratulated Dr. Cabot on his excellent work, but both considered the operation to be one which required considerable skill, and thought it might not be as safe in the hands of the average surgeon as the older operations.

Dr. Cabot, however, disputed this point, and insisted that no special skill was required of the operator, and that the operation was "about as difficult as passing a sound into the bladder."

Dr. Hugh H. Young presented a report on "The Advantages of Cystoscopic Study of Hypertrophied Prostates." Dr. Young exhibited a number of pathological specimens showing the position of the hypertrophied areas and explaining the reasons for the varying conditions.

Book Reviews.

GOULD & PYLE. A Cyclopedia of Practical Medicine and Surgery. A concise reference book, alphabetically arranged, of Medicine, Surgery, Obstetrics, Materia Medica, Therapeutics, and the various specialties, with particular reference to Diagnosis and Treatment. Compiled under the editorial supervision of George M. Gould, A.M., M.D., Editor of the *Philadelphia Medical Journal*, etc., and Walter L. Pyle, A.M., M.D., Assistant Surgeon to Wills Eye Hospital. Seventy-three contributors. Quarto, illustrated. Sheep or half dark-green leather, $10.00; thumb index, $11.00. Half Russia, thumb index, $12.00. Philadelphia: P. Blakiston's Son & Co. 1900.

This book of about 1100 pages is intended as a companion volume for Gould's Illustrated Dictionary of Medicine. The arrangement is alphabetical, and the numerous cross-references render the book an easy one to handle. The articles are short, very practical, and are not signed by the authors. There are some seventy-five contributors, including the best American authorities. The book is well printed, well illustrated, and altogether likely to take rank with the other excellent works from the same hands. F.

DIABETES MELLITUS AND GLYCOSURIA. By Emil Kleen, M.D. Octavo, pp. 313. Philadelphia: P. Blakiston's Son & Co. 1900.

Within the past few years those most interesting of nutritive disorders, glycosuria and diabetes, have been brought into extreme prominence before the medical profession by the monographs of Von Noorden and Naunyn, both of which, but especially the latter work, will remain as monuments to their authors for many years. As yet, however, neither has been translated into the English language, thus leaving the field comparatively open for a work of like return upon the same subject.

That this will be well filled by the work of the Swedish doctor, Kleen, will be apparent to anyone who has seen this latest contribution to the subject. Kleen combines the completeness and thoroughness of the German with the more interesting style of the Swedes, and the two combine to make a most valuable addition to the literature.

After giving a definition of the condition, and drawing a sharp line between diabetes mellitus and the simple transitory glycosurias, he gives a most interesting historical account of the disease, diabetes, showing how, although it was known to the Roman, Celsus, and the Indian, Susruta, it was not until 1674 that Willis first called attention to the sweet taste of the urine in certain diseases; nor was it until a century later that Dobson showed that this sweetness was due to a variety of sugar, while all the work of real importance upon the subject, the demonstration of hyperglycemia, the experiments to demonstrate the etiology of the condition, the recognition of the transitory glycosurias, etc., has been done during the present century.

Then comes a chapter upon the distribution of the disease and the causes which bring about its increase, the statistical tables in this chapter showing how the disease has increased *pari passu* with the "intensity of cultivated life," and with the ever-increasing nervous strain under which we are living.

Forty-three pages are devoted to an extremely careful analysis of the different conditions in which a transitory glycosuria has been described, and the probable causes of this transient urinary anomaly.

The following chapters are given up to a careful discussion of the various grades of diabetes, their symptomatology and complications, special chapters being devoted to the infantile diabetes and diabetes following extirpation of the pancreas.

Two of the best chapters in the book are those upon "Metabolism and Nutritive Needs," in which the whole subject of carbohydrate-metabolism is gone into with the greatest care, although admitting, of course, how imperfect our knowledge of the subject still is, and "Treatments," in which many valuable and practical suggestions are given, this latter chapter being of especial value because of the great number of patients suffering from this disorder who have come under Dr. Kleen's care at Carlsbad, with marked varieties in their symptom-complex, and consequently great adversity in the therapeutic measures employed.

The book is in all respects admirable, and should appeal to everyone who wishes to obtain a broader view of this "metabolic dystrophy."

B.

A Manual of the Diagnosis and Treatment of the Diseases of the Eye. By Edward Jackson, A.M., M.D. Philadelphia: W. B. Saunders.

The preface of this book states that it is intended for "the general practitioner of medicine and the beginner in ophthalmology." The book itself is exactly what its title indicates. It is not a treatise; it is not even a complete and finished text-book upon eye troubles. At the same time, there are features which entitle it almost to a unique place, and certainly stamp it as among our most useful books. The author's well-known straightforwardness and honesty as thinker and writer are everywhere conspicuous. He devotes the first four chapters to examination of the patient and record-keeping. Instructions are given for bringing out symptoms, and an experienced reader cannot but be struck with the skill displayed in stating every-day difficulties. The author seems to write with the patient before him. There is nothing particularly new in what is said, but it is the grouping which makes the value. In this part of the book there are a few things, it seems to the reviewer, open to criticism. As the book is for beginners, accurate and easily-understood definitions would seem essential. And yet on page 49 the expression "complimentary colors" is used without either previous or subsequent definition. On page 47 we read: "None of the theories of color perception * * * is fully established. They * * * have not sufficient bearing on ordinary clinical ophthalmology to justify repetition here." A little farther on there is a description of the detection of color-blindness. As the author gives it, the whole thing is a mere matter of memory. Proven or not, the Young-Helmholtz theory is a great help in understanding the mistakes made by the color-blind and the rationelle of clinical tests. In describing the "visual angle," pages 25 and 26, the nodal point is mentioned and illustrated (*i. e.*, placed in a diagram), but there is no intimation of what it is or what it means. There is, indeed, a total absence of theoretical optics. On page 39 "positive" and "negative scotomata" are described in the same sentence, which begins with the words, "The patient may notice." Literally, this is true, but as a matter of common observation the positive is practically always, while the negative scotoma is scarcely ever "noticed" by the patient. Such criticisms may seem trivial, but it is in just such things as these that a student finds difficulties, and imbibes conceptions which he must afterwards unlearn.

In the parts devoted to refraction and clinical ophthalmology it seems to the reviewer that there is nothing to desire for the class of readers for whom the book is written. Some of the chapters might be more easily understood if the anatomy of the part were given in detail, but with complete omission of this a reader will seek information elsewhere. Bibliography is given at the end of each chapter. Illustrations are good, but there are very few which are not old. It is apparent throughout that the writer is desirous not so much of giving a novel book as an essentially practical and reliable guide for beginners. He has succeeded. H. W.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, MAY, 1900.

THE MEDICAL PRACTICE ACT.

THE Medical and Chirurgical Faculty of Maryland prepared and presented at the recent general assembly a bill to amend the medical practice act. From the moment of its introduction the measure was beset by all the perils catalogued by St. Paul, and on the last drop of the gavel the members of the Faculty committee congratulated themselves, with good and bad, but all-sufficient reason, that nothing had been done. The danger was so grave and the escape so narrow that we have scarcely yet found breath to lament the loss of the measure.

Legislation to regulate the trades and professions is always difficult to obtain. Horseshoers and canmakers have no great difficulty to impress the legislature with the importance of limiting the activities of incompetent workmen. There are no people who want their horses ill shod or their canned goods badly tinned, but there are crowds who demand and other crowds who supply cheap legal and medical advice, and these are the people who tear off the covering of public policy and expose the substantial framework of private interest upon which such legislation is built. Here we find the hostility which may always be expected, and which should be considered in advance.

Now it is always best to engage one's enemies in detail, but the Faculty had the hardihood to challenge them all at once. They responded as one man, and under such circumstances it is perhaps creditable to the committee that, seeing the odds against them, they did not throw away their tackle and go home.

The Mackie bill was too long. It did not consider first of all what was obtainable, but undertook to meet the wishes of the schools, of the examining boards, of the general practitioners, and of the specialists. Of these several interests not one brought to the consideration of the bill any evidence of previous consultation among themselves or any definite terms of agreement. There was no regard for expediency, no pledge to the will of the majority. With the invertebrate result of these deliberations, the committee was not better equipped for a campaign at Annapolis than was Falstaff to parade his ragamuffins in Coventry, a shirt and a-half to a company.

In the legislature itself the conditions were rather favorable. The Mackie bill had excellent sponsors both in the house and senate. The committees on both sides were from the first favorably disposed. Of the two bills introduced for the purpose of beating the Mackie bill neither had merit enough to pass, and perhaps neither was intended to pass,

though one of them, most industriously fostered, got nearly enough headway to carry it through in the confusion of the closing hours. If either of them had become law the destruction of all past legislation on the subject would have been complete.

We shall have to make another effort, and it is none too early to plan. It is first of all necessary to determine what changes in the present law are most important, and to attempt no more than can be accomplished at one session. Full account should be taken of the hostility which must be encountered, and only so much of it challenged as can probably be overthrown. The force of opposition is not easily measured, but, as a rule, it bears little relation to numerical strength. This is especially true of opposition from within the profession, where a small minority, though actuated by a variety of motives, is apt to be well organized, and never without resources. The ethics of opposition do not forbid a minority to make alliances of a garlicky character. In 1898 an attempt to repeal the practice act was supported by a fund to which several medical men contributed. Nothing of just that sort is known to have been done in 1900, but the opposition to the Mackie bill did resort to advocacy of the Beasman bill, whether really in favor of the latter measure or not. Such tactics are, perhaps, not to be harshly criticised in view of the fact that to the opposition a draw is as good as a victory. From the moment when the Mackie bill received its quietus the prospects of the Beasman bill began to wane, and it expired gently in the senate on the last night of the session. It had no life of its own, but derived its whole strength from the few regular medical men who favored it. These and other like experiences should have taught us that the opposition which arises within the profession is most effective. We should not even approach the legislature until such opposition has been either conciliated or silenced, or unless the majority has both the will and the power to defeat it.

Once a plan has been determined upon, the details of its execution may properly be left to the committee on legislation, but that committee should be, and should at all times appear, not so much a motive-power in itself as the medium of influence of a combined and powerful profession. The committee cannot be nor seem to be such a medium if from the date of its commission the profession manifests no further concern. From every portion of the State some token should reach the legislature showing an interest in the proposed legislation.

Especially noteworthy is the fact that those who went to Annapolis in favor of the Mackie bill were all either connected with the medical schools or members of the Licensing Board. The petitions presented were also signed by teachers and examiners, and by scarcely anyone else. The private practitioners were not represented in any manner nor upon any occasion. When it is further reflected that every one of the schools had interests of its own at Annapolis, it may fairly be doubted whether their influence in respect of the Mackie bill was not weakened by this circumstance. Certainly, in view of these facts, any criticism upon the unsuccess of the committee would be inconsiderate and unfair. The paramount interest in the subject of medical legislation is that of the rank and file of the profession, and the private practitioners should have been foremost in activity at Annapolis.

Among the standing committees of the Faculty none exacts from its members such sacrifices of time, comfort, and money as does the committee on legislation, and there are very few men who will devote themselves to the business of legislation as did the late Dr. Michael in 1892. Such sacrifices as he made ought not to be asked of anyone. An appropriation should be made of sufficient funds to pay the expenses of at least one member of the committee to Annapolis at least twice a week during the life of the bill, and to retain if necessary the services of some competent person on the spot, who should know at every moment the status of the bill and the movements of the opposition.

We should never be represented at Annapolis by a committee which cannot in its own number present a united front. At the recent session we were represented by just such a committee, and this fact alone would have sufficed to damn any measure which we might have introduced.

In a word, then, the causes of our defeat were to be found in our own lack of organization. The Medical and Chirurgical Faculty of Maryland, though a most excellent society for professional advancement, and a profitable servant of this commonwealth for a full century, is not a guild of fellow-craftsmen. So far it falls short of the requirements of a State society, for the consideration of our relations to the State and to the public at large, though one of the humbler uses of professional organization, is of fundamental importance, and its neglect endangers, besides our rank and pay in public service, those pursuits which, rightly enough, we esteem more highly.

DR. SCOTT'S REPORT.

At the recent meeting of the Medical and Chirurgical Faculty there was not presented any business of greater general interest than the report of Dr. J. McPherson Scott, secretary of the Licensing Board. From this very strong document we quote the closing sentence: "It is for you, gentlemen of this Faculty, with an unsullied heritage, to determine what shall be your relation to the great questions of the future, involving the maintenance of the standard of professional learning and the uplifting of the medical man from the disheartening and humilating conditions with which he may be surrounded, and which may be aggravated by your indifference."

This is more than an exhortation. It has a note of menace, and it will be well for all to heed its distinct admonition that legislation upon the practice of medicine is now inevitable, and that it will be as good or as bad as the influences which give it shape. Every step taken will have regard to professional interest only in proportion as we frankly avow and vigorously defend that interest. There will never assemble at Annapolis a set of men capable of inflicting deliberate injury upon any large class of citizens, but it is equally true that no assembly will ever be able to legislate wisely on this subject unless enlightened by the common sense of a united profession.

The movement which we initiated has now direction and velocity imparted by other and not all friendly hands. We must control it, or we shall be overwhelmed by it.

Medical Items.

The J. Lewis Crozer Home for Incurables in Chester, Pa., recently dedicated, has a capacity for 160 patients.

At the commencement of the College of Physicians and Surgeons of Baltimore on April 24 thirty-five men were graduated.

Bequests aggregating over $130,000 have recently been filed in Philadelphia on behalf of hospitals and charitable institutions.

Drs. W. W. Russell and Thos. S. Cullen have lately been made associate professors of gynecology in Johns Hopkins Hospital.

Dr. W. H. H. Campbell of Owings Mills lost his house by fire on April 17. The loss, $5000, was not fully covered by insurance.

The nineteenth commencement of the Baltimore Medical College was held on April 17. Sixty-one students received their degrees.

Under the will of George W. Miles $106,000 are divided among twenty-two charitable institutions in Philadelphia, ten of this number being hospitals.

Dr. A. B. Price of Frostburg died on April 15 of pernicious anemia, aged fifty-nine. He was a graduate of the University of Maryland, class of '67.

Dr. Frank D. Kimball, a house surgeon to the City Hospital on Blackwell's Island, New York, died recently of cerebral abscess, due to otitis media, a sequel of grip.

The annual commencement of the University of Maryland School of Medicine was held at Lyceum Theater on Tuesday evening, May 1. The graduating class numbered sixty-five.

Mr. Meyer Guggenheim and his sons have given $200,000 to Mt. Sinai Hospital, New York, to build a pavilion for private patients. The gift is made in memory of the deceased Mrs. Guggenheim.

A nurse at Tarrytown Hospital is a beneficiary in the will of James D. Sarven of that town. He left to Harriet L. Burgess 200 shares of Northern Pacific first preferred stock in recognition of her helpfulness while he was in hospital.

Dr. Charles E. Turner committed suicide at his home near Rising Sun, Cecil county, on April 17. His mind is believed to have been unbalanced from protracted ill-health. He was forty-two years old and a graduate of Jefferson Medical College.

A woman in New Jersey has obtained a verdict of $8000 against the Pennsylvania Railroad Co. for a dislocated kidney caused by jar in coupling a car upon which she was a passenger. Her husband is to receive $2000 additional for the loss of her companionship.

The famine in India is increasing, and the recent rains are said not to have materially improved the outlook. The number of persons now on the relief rolls foots up 5,319,000. In one district 1,000,000 cattle died of starvation, and countless human beings also perished.

The Trunk Lines Association has granted one fare and one-third on certificate plan as the rate for the meeting of American Medical Association at Atlantic City in June. Tickets will be on sale in territory of these lines at this rate from May 30 to June 7, good to return to June 23.

Governor Roosevelt has appointed the trustees of the New York State Hospital for Consumptives. Among them are Drs. John H. Pryor of Buffalo and Willis Macdonald of Albany. An appropriation of $50,000 has been made to commence the work, which is to cost, when completed, $200,000.

Dr. James S. Martin, formerly of Brookeville, Montgomery county, died on April 14 at the home of his son-in-law, Dr. William A. Mills, of Baltimore. Dr. Martin was seventy-six years of age. He was the son of Dr. Samuel B. Martin of Baltimore, and the father of Drs. A. W. Martin and Frank Martin.

Dr. Holly R. Winchester of Annapolis died on April 9 at the home of his father. Dr. Winchester had been in ill-health for some time, and in a fit of despondency shot himself twice in the head. He was a graduate of Baltimore University, 1890, was unmarried, and had practiced medicine in Chicago till 1896; since then in Annapolis.

Dr. B. F. Leonard died at his home on Jackson Place on Tuesday, April 10, of pneumonia. Dr. Leonard was a graduate of the University of Maryland in 1876, and afterwards studied at the College of Physicians and Surgeons in this city and at Bellevue, New York. He was at the time of his death fifty-three years of age.

Dr. Charles McBurney has resigned his position as surgeon-in-chief to Roosevelt Hospital. He is succeeded by Drs. R. F. Weir and W. T. Bull, who divide the surgical work. Dr. Robert Abbe has been elected consulting surgeon. Previous to his election to the chair of surgery in Johns Hopkins Hospital Dr. W. S. Halsted served as assistant surgeon at Roosevelt Hospital.

The cost of the plague epidemic at Honolulu is said to have been no less than $2,000,000. The number of cases was seventy, of whom sixty died. This makes average expenditure per case $28,571. The typical American practical political economist would have considered it far cheaper to treat 28,571 cases for $70 each, unless he could have gotten the whole business done for $70.

The influence of the Boer language is already apparent in British medical literature. A London fishmonger got a fish-parasite fast upon his cornea. Dr. Rayner Batten's notes upon the case contain the following: "At the upper margin of the cornea is a small clear vesicle; its central portion is slightly prominent, forming a low, round-topped *Kopje* surrounded by a shallow trench." In the Boer vernacular *Kopje* does not signify *crab*.

The movement to incorporate the Medical Council of Canada has taken further shape in the form of an act setting forth the plans and purposes. One of the provisions aims to empower the appointment of a board of examiners to be known as "The Medical Council of Canada Examination Board," and provides for two classes of examination, viz., the preliminary or matriculation examination and the professional examinations.

It is said that the commission of medical officers of the United States Army, appointed to investigate the claims of the Woodbridge treatment of typhoid fever, is ready to report. Their investigations were carried on at Fort Myer, where Dr. Woodbridge, now Lieutenant Woodbridge, has had a chance to demonstrate his method. About 600 cases form the basis of the report. Of these, fifty-seven were under Dr. Woodbridge's personal care throughout the course of the disease. The mortality under the Woodbridge treatment is said to have been 10 per cent., while that of all other methods was 7 per cent.

The 102d annual meeting of the Medical and Chirurgical Faculty of Maryland was held on the 24th, 25th and 26th of April. At the preliminary session on Tuesday afternoon, the 24th, Dr. Charles L. Leonard of the University of Pennsylvania gave an illustrated lecture upon the *x*-ray as an aid in diagnosis, and Dr. T. Caspar Gilchrist gave a lantern-slide exhibit of some interesting cases of diseases of the skin. At the evening session the president's address upon "The Ethics of Medical Charities" was given by Dr. Clotworthy Birnie of Taneytown, Carroll county. Papers were read by Dr. Edwin J. Dirickson on "The Average Physical Man," and by Dr. John C. Hemmeter on "Tendencies of Medicine in the Twentieth Century," after which there was a "smoker" in the hall of the Faculty. On Wednesday morning the members were invited to clinics at the College of Physicians and Surgeons, Baltimore University and Johns Hopkins Hospital. At the afternoon session papers were read by Drs. J. B. R. Purnell, John Turner, J. C. Bloodgood, J. Whitridge Williams, A. Duval Atkinson and Thomas R. Brown. The papers of Drs. Randolph Winslow, T. S. Cullen, Julius Friedenwald and Hugh H. Young were read by title. The executive session was held on Wednesday night, the 25th. The following officers were elected for the year 1900: Dr. Samuel Theobald, president; Drs. Samuel T. Earle and J. B R. Purnell, vice-presidents; Dr. J. Williams Lord, secretary; Dr. Thomas A. Ashby, treasurer; executive committee, Drs. Wm. Osler, L. McLane Tiffany, Henry Barton Jacobs, Clotworthy Birnie; for members of the State Licensing Board, Drs. J. McP. Scott, W. W. Wiley, Cary B. Gamble, Mactier Warfield, Franklin B. Smith, Bryce W. Goldsborough and Charles F. Davidson. Dr. S. C. Chew was re-elected a trustee. On Thursday the members attended clinics at the University of Maryland and at Baltimore Medical College. In the afternoon papers were read by Drs. R. T. Taylor, Harry Friedenwald, E. F. Cordell, H. Burton Stevenson, A. D. McConachie, Hiram Woods, J. J. Carroll, H. O. Reik, Nathan Herman, T. W. Keown and Francis E. Brown. The annual oration was delivered in the evening by Dr. George W. de Schweinitz of Jefferson Medical College, Philadelphia, after which the annual banquet was held in Lehmann's Hall. A more detailed account of the scientific sessions will appear later in the Journal.

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CERTAIN CHANGES IN THE VESSELS AND VASCULAR COATS OF THE EYE WHICH ARE OF DIAGNOSTIC AND PROGNOSTIC VALUE IN GENERAL DISEASE.

By G. E. de Schweinitz, A.M., M.D.,
of Philadelphia.

ADDRESS BEFORE THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, APRIL 26, 1900.

It is always difficult for one whose lines have fallen chiefly in the places of special medicine and surgery, when called upon to address an audience composed chiefly of general practitioners—for which privilege I desire to express my high appreciation and return my heartiest thanks—to bring forward a topic that does not, on the one hand, smack too much of his own particular work, and, on the other, portray facts of mutual interest that are too well known to escape the opprobrium of oft-told tales. The mimicry of general disease by eye-strain, the diagnostic value of medical ophthalmoscopy, the ocular signs of the various toxemias, and the surgery of the eye are subjects which naturally suggest themselves and which are fraught with interest in which general and special practitioners alike may share. But a just consideration of the merits of any one of these in all its bearings would require an expenditure of time not possible or advisable on an occasion like this. We may, however, consider a subdivision of one of these topics which I trust will provide subject-matter of common interest, to wit, certain phenomena visible in vessels and vascular coats of the eye, which are indices not only of what more intimate clinical study of these tissues might reveal, but of the general malady to which they owe their origin.

Some of the best marked of these phenomena require no instruments of precision for their detection; others demand the use of the ophthalmoscope, of which instrument all physicians should make intelligent use, as they do of other instruments which refine their methods of examination and diagnosis. To be sure, it bor-

ders on exaggeration to say, as has the late Dr. Edward G. Loring, that with the ophthalmoscope "it is like walking into Nature's laboratory and 'seeing the Infinite in action,'" but the importance of systematic ophthalmoscopy is not readily overstated. "All who have employed the ophthalmoscope in medical practice," says Dr. Gowers, "will agree with Hughlings-Jackson in urging the routine use of the instrument in all diseases in which ophthalmoscopic changes are, even occasionally, met with. It often happens that unexpected information is gained regarding the nature of the disease or its probable consequences." One caution, however, I would here introduce, viz., diligent examination of the eye for signs of disease in distant portions of the organism is indispensable; but of equal or greater importance is it to remember that the eye itself may be responsible for symptoms which often are erroneously attributed to the deranged function of totally different organs. Let me elaborate this point a little:

It is unquestionably true that fully 75 per cent. of ocular disorders depend upon anomalies of the refraction, accommodation, or muscular balance of the eyes. Correction of such faults is followed by the greatest good to the eye and to the general organism in which the strain has been interpreted by symptoms not necessarily suggestive of their origin. When one comes to think about them, these symptoms stretch out into an extraordinary train, but we have ceased to wonder, and as a matter of course investigate, or cause to be investigated, the eyes whenever searching for the etiology of headache of all kinds, migraine, vertigo, nausea, pseudo- and habit-chorea, neurasthenia, and other disease-phenomena of similar manifestation. We have learned that many so-called gastric troubles—tachycardia, flatulent and other types of dyspepsia, indigestions, night-terrors, especially as they occur in children—may have a like origin, and we have found out that pains strangely and persistently situated in the nape of the neck, between and under the shoulder-blades, at the end of the spine, and deep in the mastoid may owe their origin to the same cause. These facts are widely—I was about to say almost universally—known, although, curiously enough, many of the most important of them find no place in the most-used text-books on general medicine.

While knowing these things, and profiting by the knowledge, I wonder sometimes if we remember that the discovery of the eye-strain reflexes—a discovery which it is not too much to say, in so far as the relief of human suffering and the sum of human happiness are concerned, deserves to rank with the best scientific announcements of the century just completed—is distinctly an American find, which largely we owe to the genius of Weir Mitchell and to the labors of William Thomson and Ezra Dyer. Listen to the proclamation of more than a quarter of a century ago:

"What I desire, therefore," says Mitchell, "to make clear to the profession at large is:

"1. That there are many headaches which are due to disorders of the refractive or accommodative apparatus of the eyes.

"2. That in these instances the brain symptom is often the most prominent and sometimes the sole prominent symptom of the eye troubles, so that while there may be no pain or sense of fatigue in the eye, the strain with which it is used may be interpreted solely by occipital or frontal headache.

"3. That the long continuance of eye troubles may be the unsuspected source of insomnia, vertigo, nausea, and general failure of health.

"4. That in many cases the eye trouble becomes suddenly mischievous, owing to some failure of the general health, or to increased sensitiveness of brain from moral or mental causes."

We have elaborated our methods, improved our instruments of precision and extended the list of "interpretations" of eye-strain, but otherwise have been able to add but little to this complete and compact presentation of the facts of the case.

It took some time before "the profession at large" received this new gospel, and even now missionary work is often needed. Perhaps the desire to enlighten on this point has led ophthalmologists into statements that seemed unduly to magnify the importance of eye-strain—indeed, the whole matter has not always escaped exaggeration—and this, in turn, may have led at times to an apparent indifference on the part of the general practitioner to the effect of eye-strain. Time was when the "general-man" thought a little contemptuously that the "eye-man's" horizon was bounded by the rims of a pair of spectacles, while the "eye-man" wondered how long it would be before the "general-man" would discover that drugs play only one *rôle* in the amelioration of symptoms, and that not always the most important. And even now, whenever this contempt of each other's point of view is pronounced, it tends to a divergence of energies that is apt to result in bad therapeutics. Thus, spectacles are prescribed for uric-acid headache, and calomel, lithia, the coal-tar products and what-not for an astigmatic migraine. Always to attribute a headache and the other reflex symptoms just detailed to eye-strain manifestly is absurd, but to forget its importance as a frequent causative agent is equally absurd. Why not join forces and properly investigate and weigh all etiological factors until we arrive at an intelligent conception of each case and reach the highest type of therapeutic success? Thus each medical man becomes helpful to his neighbor, one class of practitioners to another, and all classes to the great guild to which we have the honor, the very great honor, to belong.

From this introduction, perhaps I should say digression, permit me to turn to the main topic for discussion, and direct your attention to the phenomena visible in vessels and vascular coats of the eye to which I have briefly referred in the beginning of the paper.

Ordinarily the blood-vessels of the conjunctiva and episclera—the anterior and posterior conjunctival and the anterior ciliary vessels—are not conspicuous in health. Still, their transparent cov-

ering renders their study easy, even under normal circumstances, and very easy when inflammation makes more prominent those which are always visible, and brings out many others which ordinarily are invisible. Now, overfilling of these vessels, or, in general terms, congestion or hyperemia, is not necessarily a symptom of local ocular disorders only, but may have a more far-reaching significance. Perhaps the most interesting and important of these conjunctival congestions of far-reaching significance are those which are symptoms of masked gout. They were originally described by Jonathan Hutchinson (*Trans. Ophth. Soc. U. K.*, Vol. V, 1885, p. 6) under the name "hot eye" as follows:

"Usually one eye only is affected, but sometimes both. The conjunctiva becomes red, and the eyeball feels hot, and pricks, as if sand were in it. The attack may come on within half an hour of the meal which has disagreed, and it may last a few hours, or a day or two."

The sensation in the eye thus affected is somewhat analogous, I think, to the itching and burning which at night often attack the soles of the feet of gouty subjects; that is, the gout "lisps," as Strabo would say, not only in the plantar surface, but on the scleral expansion. A similar and perhaps identical condition has been described by Swan M. Burnett (*Archives of Ophthalmology*, XXI, 1892, p. 260), but was attributed by him to a disturbance in the vaso-motor system, the cause of which could not be positively determined. Evidently the more elaborately recorded fugacious periodic episcleritis of Fuchs (*Graefe's Archiv.*, XLI, iv, p. 229) is the same disorder, perhaps rather better developed.

These transitory episcleral congestions come on rather suddenly, and present themselves in the form of patches of hyperemia of the sclera and the overlying conjunctiva, sometimes with a distinct violaceous hue, which last for a few hours or a day or two, and recur again and again, and are associated with photophobia, burning and itching. Usually an affection of middle life, it is not necessarily so, and may occur in comparatively speaking young persons. Two of the best examples which I have seen were in women under thirty years of age, who in all other respects appeared to be in the bloom of perfect health. This was the sole manifestation of the gouty condition, and yielded to suitable remedies.

Hutchinson regarded the conjunctival condition as often antecedent to an inflammation of the iris, although not necessarily so. I have observed a relationship which seems to me more important than this, viz., that periodic episcleral congestion of gouty origin may be the forerunner, sometimes the follower, of retinitis and retinal hemorrhages. I will refer to this more in detail later on. But from the general standpoint it is a sign worth consideration, because it may be the only symptom of a masked gout, the prodrome of a gouty explosion elsewhere in the body, or the first indication of vascular changes deep in the ocular coats, which, in their turn, are significant of widespread arterial changes throughout the body.

But the blood-vessels of the conjunctiva do not only become congested, but they frequently rupture, the blood spilling out into the subconjunctival tissue, and appearing on the sclera as bright or dark red patches, according to the amount of blood effused. Those conjunctival hemorrhages which are part of the symptomatology of ocular diseases, or occur as the result of trauma, or from violent coughing, as in pertussis, are not now in consideration, but only those which occur spontaneously. That hyphema, retinal hemorrhages, or retinitis, may be the first symptom which directs attention to chronic nephritis is well known, but that recurring subconjunctival hemorrhages may play the same *rôle* is equally true, although it is doubtful if they have received the place which they deserve among the ocular signs of so-called Bright's disease. Occasionally writers, for example, Talko, D. B. St. John Roosa, F. Ring, C. S. Bull, have called attention to this matter, but more commonly text-books when describing nephritis are silent with reference to the symptom, although other hemorrhagic phenomena, epistaxis, purpura, retinal extravasations, etc., are recorded.

In my experience these subconjunctival ecchymoses have occured in persons past forty, and usually during sleep, the patient being surprised on waking in the morning to find a more or less extensive subconjunctival extravasation, most frequently, I think, in the left eye. In one case they may occur at comparatively short intervals; in another the periods between the attacks may comprise several weeks or even months. In five cases seen recently, three of the patients having died, the ages were in two between forty and forty-five, in one between fifty and sixty, and in one between sixty and sixty-five. The fatal issue occurred within three years after the first subconjunctival hemorrhage was noted, and these hemorrhages were the first sign which called attention to the chronic contracted kidneys from which they all suffered. What the relative frequency of these subconjunctival hemorrhages is compared with other more commonly-described ocular manifestations of nephritic origin is not apparent, owing to insufficient data. Sometimes it would seem that they may be associated with the ordinary retinitis of nephritis, but this is not my own experience. Perhaps in a certain sense they may at times replace the retinal lesions of chronic nephritis; certainly they may precede them. If this association of Bright's disease and recurring subconjunctival hemorrhages is a matter of common observation, as indeed it well may be, at least the fact has not been emphasized, and the simple rule to examine the urine carefully in each such case may lead to the discovery of a serious renal disorder, which, as William Osler has said, is frequently latent, and even in an advanced grade may be compatible with great mental and bodily vigor.

Of course, hemorrhages of this character occurring in elderly people are indicative of ordinary angio-sclerosis, and are only one of the many signs of this condition, but what I wish to point out is that they are not confined to the eyes of old people, but may be

seen, as I have just quoted, in those not much over forty, and in subjects, moreover, in apparently perfectly vigorous health, and when signs of arterial degeneration are not evident in the radials or temporals. One patient to whom I have referred scouted the idea of the necessity of urine examination, although within three months he had had three spontaneous subconjunctival hemorrhages, none of them very large, and all of them disappearing quickly, a peculiarity which, if anything, enhances the significance which I have given them. They are the little leaks announcing that a greater break is not far off.

An exactly analogous condition may appear in the delicate skin of the lower eyelid, and should, therefore, be designated recurring subcutaneous ecchymoses. The spots are only a few millimeters in length, of a slightly purplish hue, resembling a small bruised area, and, like their congeners in the conjunctiva, they come and disappear quickly. They undoubtedly have exactly the same significance. Indeed, in one case I have seen the subconjunctival and subcutaneous ecchymoses alternate. It is unnecessary to dwell further upon this subject, except again to emphasize the importance of observing changes in the subconjunctival and episcleral vessels and their relationships to serious widespread general vascular disorders.

The vascular changes which occur in the iris in connection with general disease are a little more difficult to study; in fact, except in so far as certain types of inflammation of this membrane are associated with Bright's disease and diabetes, the iritis under these circumstances being accompanied by recurring hemorrhages in the anterior chamber, they are not of very great interest to the general practitioner as a source of diagnostic information.

Permit me now to pass to a consideration of the changes in the retinal arteries which are indicative of general arterial disease from the ophthalmoscopic standpoint, and which recently have been attracting renewed attention and have created widespread and deserved interest.

Inasmuch as arterio-sclerosis, both as an independent affection and as an associated condition, has been, especially since the classic researches of Gull and Sutton, the subject of accurate clinical study, it would seem natural that the retinal arteries, readily examined as they are in a natural state, should have received a full share of consideration. In point of fact, however, text-books, both general and special, are singularly silent in regard to them, and sometimes express themselves in such a manner that one is led to believe that from the appearances of the retinal vessels no inference as to the condition of the general vascular system can be made. For example, Gowers ("Medical Ophthalmoscopy," third edition, 1890) writes as follows: "Chronic changes in the vessels rarely reveal themselves by retinal signs. Those which do occur, the rare coincidence of aneurisms or signs of degeneration of the retinal vessels, with a similar change elsewhere, have been already sufficiently considered in the general account of the changes in the

retinal vesels." Turning to this general account, we find the following statement: "Actual atheroma—*i. e.*, endarteritis deformans —has not, so far as I am aware, been found in the retinal vessels after death, and in cases in which it is well marked elsewhere I have looked for appearances in the retina suggesting its existence, but without success." In explanation of this Dr. Gowers suggests that the retinal arteries are far below the size in which the atheromatous changes are common. He has, however, described a notable diminution in the size of the retinal arteries independently of any special retinal disease in some cases of chronic Bright's disease, as well as irregular contractions of these vessels and perivasculitis, somewhat of the character to which I shall presently refer (*loc. cit.*, p. 210).

Knies ("Die Beziehungen des Sehorgans und Seiner Erkrankungen zu den übrigen Krankheiten des Körpers und Seiner Organe," Wiesbaden, 1893), after referring to the ocular symptoms which may be produced in the eye by extensive disease of the vessels, particularly atheroma, arterio-sclerosis, fatty degeneration, and certain specific diseases, says: "The different anatomico-pathological forms can rarely be distinguished from one another with the ophthalmoscope. Although such vessel changes are found post-mortem in the retina and choroid, they are seen with the ophthalmoscope with comparative infrequency, but not so rarely as was formerly supposed." He then proceeds to quote the examinations of Raehlmann ("Ueber Ophthalmoskopisch sichtbare Erkrankung der Netzhautgefässe bei allgemeiner Arteriosclerose, mit besonderer Berücksichtigung der Sclerose der Hirngefässe." *Zeitsch. f. klin. Med.*, Bd. XVI, H. 5 u. 6.), who studied ninety cases of general arterio-sclerosis for the purpose of considering the associated ophthalmoscopic changes in the retinal vessels, and found some changes in practically all cases, and decided changes in 19 to 21 per cent. Hirschberg ("Ueber Altersveränderungen der Netzhaut." *Centralbl. f. prakt. Augenheilk.*, 1890, Bd. XIV, p. 322), in his investigations of senile changes in the retina records analogous observations, and this is my own experience in my investigations of old persons' eyes in the Philadelphia Hospital.

Of particular interest in this connection are the studies of Dr. H. Friedenwald of Baltimore of cases of arterio-sclerosis. Indeed, his work on the changes in the retinal vessels under these circumstances is in some senses pioneer in this country, and deserves unstinted praise. His first paper (*Journal of the American Medical Association*, 1891, XVI, p. 623), published in conjunction with Dr. George J. Preston, records the examination of forty retinas in twenty-three patients suffering from general arterio-sclerosis, in which only seven appeared thoroughly normal. Later, Dr. Friedenwald pursued this subject in an examination of thirty-three cases of arterio-sclerosis, and found, as before, with great frequency, the changes presently to be detailed ("The Significance of Constrictions and Dilatations and the Caliber of the Retinal Arteries." *Arch. of Ophthal.*, 1896, Vol. XXV, p. 177).

The most recent suggestive communication upon this topic is from the pen of Mr. Marcus Gunn (*Trans. Ophth. Soc. U. K.*, 1898, Vol. XVIII, p. 356), and it is to his results, as well as to the results which have been embodied in the foregoing *résumé*, that I wish particularly to call attention, first, because I believe that ophthalmoscopic examination under these circumstances furnishes an important aid in diagnosis and prognosis, and secondly, because it is evident that although ophthalmologists, as is plain from the researches of Raehlmann, Hirschberg, Friendenwald, Gunn and, perhaps, I may be permitted to say myself, have not overlooked this matter, the text-book descriptions of arterio-capillary fibrosis do not give it the prominence it deserves.

The ophthalmoscopic signs which may be encountered in general arterio-sclerosis are:

(1) Alterations in the course and caliber of the retinal arteries, manifesting themselves as (a) undue tortuosity, which is not significant unless, to quote the words of Mr. Gunn, it is associated with other evidence of disease; (b) alterations in the size and breadth of the retinal arteries, consisting of general contraction of one or more branches, or, more suggestively, of alternate contractions and widenings, where, for example, a vessel may proceed with practically normal caliber for a certain distance, then suddenly narrow almost to a thread, again fill out, and again narrow, thus presenting, as it were, a beaded appearance.

(2) Alterations in the reflections from the translucency and walls of the retinal arteries, manifesting themselves (a) in increased distinctness of the central light streak on the retinal vessel and an unusually light color of the entire breadth of the artery. The vessels, as Mr. Gunn points out, give the impression not only of increased brightness of the central light streak, but of an unusual reflection from the arterial coat. (b) Loss of translucency, so that it is impossible to see, as is possible in the normal state, through the artery an underlying vein at the point of crossing; (c) positive changes in the arterial walls, consisting of whitish stripes, indicating degeneration of the walls, or infiltration of the peri-vascular lymph sheaths.

(3) Alteration in the course and caliber of the veins, together with signs of mechanical pressure, manifesting themselves (a) in undue tortuosity, which, as in the case of the arteries, is not significant except in the presence of other disease; (b) alternate contractions and dilatations; (c) an impeded venous circulation where a diseased artery crosses it.

The last is the sign which Mr. Gunn particularly dwells upon, and which, in my experience, is of the utmost importance. Ordinarily, as an artery crosses the vein, as may be seen by an examination of the normal eyeground, there is no sign of pressure, and the translucent vein permits a view of the artery beneath it. If the walls of the artery are thickened by disease, then it presses upon the vein, pushes it aside, or directly contracts its caliber, so that beyond the point of crossing there is an ampulliform dilatation.

So, also, when the vein overlies the artery there may be a similar contraction of the venous caliber and dilatation on either side of the spot of crossing. (d) Changes in the venous walls, precisely as they occur in the arteries, so that whitish stripes border the vessel, and are indications of degeneration in its walls. Often associated with this one may see varicosities, as already pointed out by Raehlmann, and which are well shown in the accompanying water-color.

(4) Edema of the retina, manifesting itself (a) as a grayish opacity, which may be present in the immediate neighborhood of the papilla, or in spots over the eyeground and along the course of the vessels, looking like a fine gray haze, or in little fluffy islands far out in the periphery.

(5) Hemorrhages, manifesting themselves as linear extravasations along the course of the vessels, roundish infiltrations scattered over the fundus, or sometimes, when extensive, in droplike form, especially in the macular region, forming the so-called subhyaloid hemorrhages. As a result of hemorrhages there are frequently scattered through the eyeground yellowish and whitish-yellow spots bordered with pigment, indicating the atrophy of the elements that has taken place during the course of the absorption of hemorrhage.

It is perfectly evident that all the phenomena which have been described—arterial changes, signs of mechanical pressure, edema and hemorrhages—may be readily explained, as Mr. Gunn has so happily done in his admirable paper, by the alterations which have taken place in the coats of the retinal vessels. These alterations, according to various observers, on microscopic examination have proved to be hyaline degeneration of the whole wall (Hirschberg, Manz), thickening of the intima, due to development of concentric fibers of connective tissue, narrowing of the media and hyaline degeneration, and enormous thickening of the adventitia (Lurje).

From the clinical standpoint, of course, such changes as these are interesting in their relation to diagnosis, prognosis, and, perhaps, I may say therapeusis.

Before entering upon this discussion two questions should be answered: (1) Are these ophthalmoscopic appearances common to all old eyes, that is, are they always present in the eyes of those patients who, by virtue of the years of their lives, are naturally subject to the intrusion of the lime salts? In reply Mr. Gunn may be quoted: "Old age alone does not produce these changes. I have often seen healthy-looking retinal vessels in people seventy to eighty years of age." This statement is readily confirmed by the experience of all ophthalmologists. (2) Are these appearances found only in the eyes of those who have markedly developed elsewhere in the body signs of arterial degeneration, or are these changes marked in proportion to marked changes elsewhere? Not necessarily; indeed, there may be the indications of extensive atheroma of the general arterial tree and none in the retinal vessels. On this point Friedenwald says "the degree of the variations in caliber (dilatations and constrictions) of the retinal arteries does not bear

a definite relation to the signs of arterio-sclerosis in other parts of the body." Again, "the general evidences of arterio-sclerosis may be slight, while the constriction of the retinal arteries may be marked."

First, a case to illustrate diagnosis:

Mrs. ——, aged sixty-five, a woman with comfortable surroundings, consulted me because she believed her glasses needed changing, and for relief from recurring attacks of episcleral and conjunctival congestion of a nature similar to that which I have described. The patient was a heavily-built, florid woman, who since 1890 had each winter suffered from an attack of bronchitis of the influenza type, although never very severely. At night she was somewhat asthmatic, complained of being rheumatic in the vague sense in which that term is used, although she had never had an attack of acute inflammatory rheumatism. Recently she had been troubled with drowsiness.

The vision of the right eye was 6/12 after correcting the refractive error, the disc was slightly blurred, the arteries markedly small and clear, the veins unevenly tortuous, and in the macula there were the remains of an old extravasation.

The vision of the left eye was 6/6 after correction of the refractive error, and the ophthalmoscopic appearances are depicted in the accompanying water-color, namely, edema of the nasal margin of the disc; light-colored, somewhat tortuous arteries, the upper temporal artery being markedly and unevenly narrowed and constricted, and bordered by one or two old extravasations; distended veins, presenting numerous alternate contractions, beautifully exhibiting the signs of mechanical pressure where they are crossed by the arteries, the upper temporal vein being so impeded in its circulation that it is fringed with a white border of infiltration, unevenly contracted and gradually dwindled to a tortuous thread, preceded by several varicosities; in other words, in one eyeground all of the appearances which are characteristic of arterio-sclerosis.

The capillaries of this woman's face were somewhat distended over the bridge of the nose and on the cheek bones. The pulse was eighty to the minute, the radial artery being a little rigid to the touch, and more rigid upon the left than upon the right side. The temporals were plainly visible, although not greatly distended. There was no heart murmur. The specific gravity of the urine was 1010 and 1008, respectively (two specimens); there was a trace of albumen in the evening urine; sugar was not present; an occasional hyaline cast was found.

An eyeground such as this, together with the other clinical signs detailed, indicates widespread arterial change. The prognosis is bad. Cases of this kind are always, in my experience, likely to suffer from extravasations elsewhere in the body, and particularly in the cerebrum. Certainly it may be said attention to the patient's arteries was directed by the ophthalmoscopic examination, and necessarily her diet and her habits of life were regu-

lated according to the findings. But for the attack of conjunctivitis which led to the examination of the fundus this condition would not have been discovered.

A very important and interesting relationship in this patient existed between the attacks of scleral and conjunctival congestions and the retinal changes. They almost certainly preceded the lesions in the fundus, and even now—for the patient is still under observation—it would seem that episcleral attacks and retinal extravasations may alternate. In this respect they somewhat resemble the behavior of the recurring subconjunctival hemorrhages already described.

A case to illustrate prognosis: A clergyman, aged forty-six, a native of America, consulted me because he believed he needed change in glasses, which he had worn for a number of years for astigmatism. Ophthalmoscopic examination at that time did not reveal any marked retinal change, except very full tortuous veins, exhibiting characteristically the impeded circulation already described, and some grayness of the optic discs. New glasses were furnished, and three weeks later he reappeared, stating that there appeared to be a faint blur before one eye, which he believed to be due to the fact that the glass was not entirely suitable. Ophthalmoscopic examination now revealed increased tortuosity in the veins, with increased signs of mechanical pressure, and a soft, yellowish-white extravasation in the retina up and out from the disc, near the edge of which were a few striated hemorrhages. The rest of the eyeground was free from disease, nor were there hemorrhages or extravasations in the retina of the left side. The patient had suffered from dyspepsia for a long time, had occasionally had palpitation of the heart and drowsiness. Examination of the urine revealed a low specific gravity and an inconstant slight albuminuria. The arteries were hard and showed high tension. There was a faint mitral regurgitant blowing sound, which Dr. Hare, who examined him from the general standpoint, described as a blurring of the sound rather than a real murmur. The treatment consisted in proper regulation of diet and duties. The patient was told of his precarious condition and his people warned that sudden death might be expected—a warning which was realized two months later, when in the middle of the night he developed signs of intracranial hemorrhage and died in a few hours. Autopsy was not permitted.

The serious prognostic import of retinal hemorrhage is well known, but sometimes it appears to be neglected. Hasket Derby (*Transactions of the Massachusetts Medical Society*, June 2, 1897), writing on the occurrence of retinal hemorrhage after middle age and its bearing on the duration of life, analyzed thirty-one cases, the patients being between the ages of forty-three and eighty-three. Twenty-five of these died after brief illnesses, some with great suddenness. Eleven of this number died of heart disease, fourteen of apoplexy. Mr. Marcus Gunn (*Loc. cit.*, page 365) has also recorded a series of cases which illustrate the intimate association

between such ophthalmoscopic lesions which he has described, and which I have just reviewed, and cerebral vascular disease. The important point demonstrated by the case I have detailed is that these retinal-vessel changes may furnish a prognostic guide even before positive extravasations have appeared. It is for this reason, if for no other, that I wish to add my voice to those who urge that general physicians shall study the appearance of the retinal vessels in many of their patients.

A case to illustrate therapeusis: A married woman, aged forty-three, consulted me because of recurring attacks of conjunctival congestion and a slight blur before the left eye, which was attributed to the mucus gathering upon the cornea. In 1897 the patient had undergone an operation for lacerated perineum, which was followed by an intense secondary hemorrhage and a protracted convalescence. In the summer of 1898 she suffered from malaria, and in November of the same year was again subjected to a perineal operation and again suffered from secondary hemorrhage. The urine is said to have been examined on a number of occasions and found to be normal. Her only complaint, except some lassitude following these hemorrhages and illnesses, when I saw her was the conjunctival hyperemia previously described. The vision of the right eye was normal, but none the less, there was a slight neuritis, a few spots of fatty change in the macular region, and down and in from the disc a whitish exudate. The vessels were typically compressed and unevenly constricted in the manner already described. In a word, they were what I may call examples of Gunn's vessels. The vision of the left eye was also 6/5, and the appearances are depicted in the accompanying water color, namely, slight edematous neuritis, a linear hemorrhage up and in from the disc between the superior nasal vein and superior nasal artery; just below the macula a brownish spot, probably the remains of a former hemorrhage. The arteries were pallid, unusually clear, unevenly tortuous. Where they crossed the superior and inferior temporal veins were the typical appearances of mechanical compression, while along the branches of the central arterial tree distinct perivasculitis was evident; in other words, again a repetition of the appearances now several times described. Owing to the succession of hemorrhages, this patient has been on continuous doses of iron, but otherwise had received no medication. An examination of two specimens of urine revealed respectively 1010 and 1006 specific gravity, a trace of albumen and a few hyaline casts. None of the external arteries, that is to say, the radials, the temporals, etc., were hard to the touch. There was no heart murmur. On the strength of the ophthalmoscopic appearances, at my suggestion, the iron was continued, but in addition the patient was given small doses of iodide of sodium and nitro-glycerine. Whether because of these remedies or because a more careful habit of life was pursued, there was marked improvement both in the general and the local conditions. Sufficient time has not yet elapsed to determine positively whether these therapeutic agents

will make any difference in the appearance of the retinal vessels, and it is with some hesitancy that I quote the case as an example of the advantage of these examinations from the therapeutic standpoint. Still, without such examinations, I do not believe the indications for nitro-glycerine and for iodide of sodium would have come prominently to the front.

In concluding these somewhat desultory remarks on this subject, I beg leave to point out, in the first place, that I have not described anything new. These appearances have been known for many years, but they have not received the recognition they properly deserve. They must be sharply distinguished from the very well-known clinical signs in the retina which are grouped under the general term of renal retinitis, or hemorrhagic retinitis, or the retinitis of Bright's disease. They are part of the symptomatology of arterio-sclerosis, and I presume therefore may be considered part of the symptomatology of a condition which may terminate in a special localization of endarterial changes in the kidney and constitute the so-called Bright's disease. They may be, moreover, evident when there are no special general clinical signs to call attention to the slow invasion of cerebral arteries by degenerative processes which may terminate in rupture and cerebral apoplexy. As a recent reviewer of Tirard's work on albuminuria and Bright's disease says, referring to these changes in the retinal arteries, "their importance as an indication of general arterial disease should be widely known. These changes are often obvious in cases in which the usual retinitis has not developed." I would like to go further, and say they are obvious in cases in which the usual retinitis will not develop, because they are the forerunners of a process which may terminate fatally before the development of fully-established nephritis. (I have also discussed this subject before the Pathological Society of Philadelphia, and have quoted freely from my paper published in its transactions.)

I may summarize thus:

(1) Flitting conjunctivo-episcleral congestions may be the only symptom of masked gout.

(2) Such congestions may be the prodromes of later gouty manifestations in the eye or elsewhere in the body, but also (and most importantly) may be the forerunners, associates or alternates of retinal-vessel changes, which, in their turn, are the indications of general arterio-sclerosis of serious prognostic import.

(3) The same conclusion applies to recurring subconjunctival and recurring subcutaneous palpebral hemorrhages, which seem, however, to be related especially to the chronic form of nephritis, exactly as is the classical retinitis.

(4) Inflammation, hemorrhage and edema, with exudation, are not necessarily the ophthalmoscopic signs of general arterial disease or of its special localization in certain organs, for example, the kidney. It may be manifested with perhaps equal frequency by alterations in the walls of the retinal arteries and changes in the

course and caliber of the veins, together with signs of mechanical pressure where veins and arteries cross.

(5) These retinal-vessel changes may be present when ordinary physical examination does not reveal the signs of endarterial change in the surface vessels of the body generally.

One of America's most distinguished medical teachers was wont to say: "Symptoms are the surface play of disease, which, if correctly interpreted, lead the physician to appreciate the therapeutic needs of the affected organs." Such a surface play, in so far as one organ is concerned, and largely in relation to the affection of one tissue, I have ventured to exhibit. When I remember the long line of my able predecessors in this evening's function, the distinguished men who have graced and now grace your Faculty, and their invaluable contributions to medicine and surgery, I am distinctly depressed by the imperfections of this presentation. Still, as the late Dr. Goodell, quoting the Caliph Omar, was wont to say, "Two things come not back—the sped arrow and the spoken word." And I am comforted, for the sped arrow was found in the heart of an oak, but the spoken words in the hearts of friends.

A CASE OF CHOROIDAL SARCOMA.

By Hiram Woods, Jr., M.D.,

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With description of specimen.

By J. J. Carroll, M.D.,

Assistant Surgeon at Presbyterian Eye, Ear and Throat Charity Hospital.

REPORTED AT THE MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, APRIL 26, 1900.

MALIGNANT tumors of the eye are not very common. According to Jackson they occur about once in 3000 cases of eye disease. Their prompt diagnosis is a matter of prime importance. Systematic writers divide the life history of intraocular neoplasms into four stages: 1. When the tumor has not produced external signs of inflammation; 2. When such signs exist, usually accompanied by increased tension; 3. When the sclera is perforated, and orbital tissues are involved, ocular tension usually falling below normal; and 4. When metastatic deposits are present. Jackson ("Diseases of the Eye") calls the first and second of these stages "latent" and "inflammatory" or "glaucomatous." It is in these stages that the diagnosis must be made if cure is to be effected.

Symptoms during the first stage may be so slight as to escape attention, while in the second they may so closely resemble those of acute inflammatory glaucoma, or irido-cyclitis, as to prevent correct diagnosis. In the first stage pain is entirely absent. Symptoms, if observed, are functional—have to do with impair-

ment of vision. In a case seen by myself and several other oculists some years ago, where the growth involved the lower half of the eye, defect in the superior visual field was the only symptom. For a time the ophthalmoscopic diagnosis was clouded by a neighboring retinal detachment. Central vision was, with refraction correction, 20/40. Enucleation was performed. Later the patient died of metastatic deposits in the liver. A second case, reported in the *Journal of Eye, Ear and Throat Diseases* for April, 1898, presented defective vision, and associated convulsive tic of the face as the only symptoms of choroidal sarcoma growing from the superior fundus. To this writing there has been no metastasis. Enucleation did not affect the spasm of facial muscles. The growth was large enough to interfere with rays of light passing to the macula, and thus the thought that refraction error might be the cause of facial spasm led to examination of the eye. A third case, seen only recently (the examination of growth not being yet complete), presented only one symptom—poor vision. It was easily demonstrated that this defect was greatest in the superior nasal field. A growth in the lower and temporal quadrant was readily diagnosed by the ophthalmoscope. These cases are mentioned to illustrate the symptomatic importance of the partial or complete loss of vision at some period of the disease when forming an opinion as to the presence of an intraocular tumor. As before stated, in the inflammatory stage inflammatory symptoms may mask everything else. They may render ophthalmoscopic examination impossible. Produced, as they are, by cyclitis, or irido-cyclitis, secondary to the progress of the tumor, nothing but the known painless loss of vision before inflammation appeared may give a clue to the real condition. This is well illustrated in the following case:

J. W. J., aged thirty-four, white, married, consulted me December 19, 1899. He was a farmer and saloon-keeper at his home in Virginia, and evidently an alcoholic. The right eye had become painful in September, 1899. He had seen several physicians, who had diagnosed iritis, glaucoma, conjunctivitis, etc. Objective examination showed the following: Intense engorgement of the ocular conjunctiva and submucous tissue, completely hiding the circum-corneal vessels; cornea clear; anterior chamber shallow, on account of forward displacement of pupillary area of iris. The periphery, however, was retracted, the iris thus sloping forward from its ciliary margin. Pupil small, round, excluded and occluded; color of iris dirty brown and lusterless as compared with that of the fellow eye. About 2 mm. from the corneal margin downwards and inwards there was a perceptible bulging of the sclera, extending some 3 or 4 mm. backward and inward and of a corresponding breadth. The globe was painful on pressure; T. + 1; no "l. p." The left eye was normal. The case thus presented the symptoms of destructive irido-cyclitis, yet the patient denied all of the constitutional causes of this disease, such as syphilis, gout, rheumatism, infectious disease, and trauma. There

was no evidence of recurrent inflammation. There had simply been a continuous and slowly increasing pain in the eyeball since September, 1899, with increasing redness. Such objective changes in so short a time from a single attack of irido-cyclitis, while not impossible, were improbable. The absence of usual causes of irido-cyclitis made this disease, as a primary affection, doubtful. It was only when urged to recall any previous eye trouble that the patient stated (what he had until then forgotten) that in the spring of 1898, while driving in the country, a gnat had flown into his left eye. While the eye was closed by the spasm of the orbicularis muscle he had discovered that the right eye was sightless. He reported the occurrence to his physician, who advised him to consult an oculist when convenient, and there the matter was dropped. The case now seemed solved. I expressed the opinion that the loss of sight at that time was due to an intraocular growth, and that it had remained latent for eighteen months, when the inflammatory stage had commenced. I advised enucleation. The operation was consented to with great reluctance, only because the eye was sightless, and, to quote his own words, "If I don't get rid of it I will always be tormented by the fear of your being right." Operation was performed on December 20 under chloroform anesthesia. There was considerable thickening of the subconjunctival tissue along the nasal border of the inferior rectus muscle. This tissue was removed. The sclera was not perforated at any point. Mr. J. wrote me in March that he was quite well. Dr. Carroll's notes are as follows:

"Immediately after its removal the eye was cut open for inspection, and was then put in a 10 per cent. solution of formalin.

"*Macroscopic Appearance.*—The only abnormal conditions upon the exterior of the bulbus were, first, a bulging of the sclerotic at and in front of the equator below, and, secondly, the presence of a thick band of tissue, which extended from the attachment of the inferior rectus to the optic nerve. It was intimately adherent to the eyeball, and was about 15 mm. in its greatest width. The tendinous attachment of the inferior rectus was involved in this thickening, but the muscle itself was free. The surface of this thickened tissue was uneven, and there were many dark spots in its anterior half, some being close to the surface, others lying deeper in the tissue. Blood-vessels in the vicinity of the limbus, above and below this band of tissue, were congested. The interior of the eye showed at the equator and at a point corresponding to the bulging of the scler-

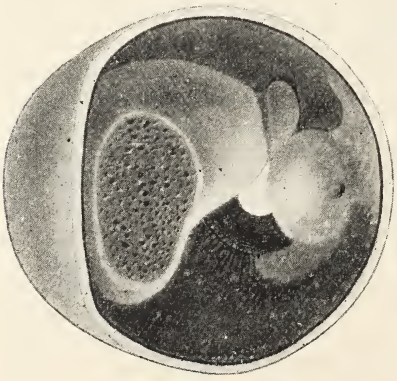

FIG. I.

otic a tumor mass, knob-shaped, which extended from the choroidal coat across the intrabulbar space to within 5 mm. of the opposite side. Its shape was not unlike a snail shell, the largest turn corresponding to the base of the tumor. Between the base and the underlying choroid was a distinct constriction or neck. Between the apex of the tumor and the wall of the eyeball was the displaced lens, which had been dislocated and pushed along in front and somewhat to the side of the advancing tumor. The lens lay against the choroid in a delicate white tissue, which was thrown more or less into folds. The surface of the tumor was uneven, smooth and of a dirty grayish color. The interior was dark brown or black, and the whole of a firm consistency. Its longest diameter from base to apex measured 17 mm., and its greatest width was 12 mm. Base was attached to choroid. The apex was free, though lying adjacent to the displaced lens. Retina was completely detached, floating freely from the entrance of the optic nerve. Choroid was in position, though not as firmly attached to the sclerotic as normal. (See Fig. I.)

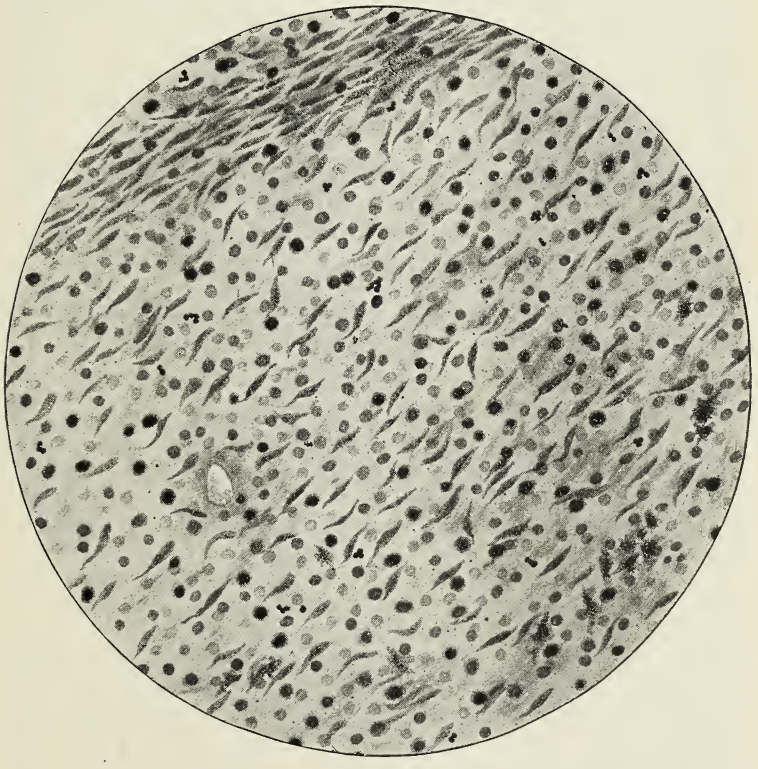

FIG. II.

"*Microscopical Examination.*—Upon the surface of the tumor and quite intimately connected with it was a covering of variable

thickness composed of connective tissue. At first glance the ground-substance, which was considerable in amount, appeared quite homogeneous, but upon close examination its fibrillar structure could be easily made out. It stained with easin and also with Van Giesen's picric-acid fuchsine. The cells found here were chiefly epithelioid, lymphoid, and polymorphonuclear leucocytes. Epithelioid cells with large oval nuclei were more conspicuous in that part of the sheath which lay adjacent to the tumor. Very small thin-walled blood-vessels were rather numerous, and not a little loose pigment was found, especially in the neighborhood of the underlying growth. The line of demarcation between covering and tumor was quite distinct, the structural appearance of the two being entirely different. In the tumor itself the intercellular substance was very scanty, while the cellular part composed nearly the entire mass. Of the kinds of cells present, the most noticeable were the spindle-shaped. These were scattered throughout the tumor, but often they were arranged in parallel columns, running in a more or less definite direction. Here and there the structural appearance of the tumor gave a suggestion of alveolar sarcoma. Many of the spindle-shaped cells were pigmented. The pigment was dark brown, finely granulated, and in many places took the shape of the cell-bodies, being broader about the middle and tapering into a thin line at the attenuated extremities of the cells. It was not only seen in the cells, but also in a free state between the cells, and here and there it was collected in masses. Besides the spindle-shaped, there were many round cells, whose nuclei were well stained with hematoxylin, and whose cell-bodies were in many instances quite well preserved. There was no pigment in the round cells. Distributed irregularly throughout the tumor were polymorphonuclear leucocytes, quite a number of thin-walled blood-vessels, and a few areas of blood-extravasation." (See Fig. II.)

A Prolific Family.—Among recent returns of births for the State of Maryland was a birth certificate sent by Dr. J. V. Wallace of Chesapeake City, who reported the birth on February 23, 1900, of Warren Oliver. Besides the mother, who was unavoidably present, the birth was waited upon by the grandmother and great-grandmother, while in a nearby house the news was received by the great-great-grandmother. From this last-named lady, now only seventy-two years of age, there have sprung eleven children, of whom eight are living, and fifty grandchildren, of whom eighteen are living. There are twenty-two great-grandchildren living, and there have been two great-great-grandchildren, one being the child Warren Oliver. The record does not give the number of great-grandchildren dead, but the figures given show that there have descended from this very superior mother eighty-five children, of whom sixty-three are living. The number of plural births is not given, but the oldest daughter, now fifty-two years old, had twins four times. This is a very remarkable record.

SEPTIC THROMBOSIS OF THE LATERAL SINUS.

REPORT OF A CASE, WITH RECOVERY AFTER OPERATION.

PRELIMINARY REPORT

By Harry Friedenwald, M.D.,

Baltimore, Md.

PATIENT PRESENTED AND PAPER READ BEFORE THE ANNUAL MEETING OF THE MEDICAL AND CHIRUGICAL FACULTY OF MARYLAND, APRIL 26, 1900.

One of the most interesting advances in aural surgery in recent years has been in the treatment of the intracranial diseases depending upon purulent otitis media and caries of the temporal bone. It is not many years since these conditions were regarded as almost hopeless. Not the least dreaded was septic thrombosis of the lateral sinus and consequent pyemia. The first operation for the relief of this condition was done by Zaufal in 1884. In 1889 Lane, and in 1890 Ballance reported the first successful operations. Within the last decade the number of operations has increased at a rapid rate, and it is pleasant to read of the considerable number of cases that have thus been cured. I have myself seen several cases of septic thrombosis end fatally. One I reported to this Faculty in 1890. Two years ago I operated upon a young lady and relieved the thrombus. The patient lived for several weeks, but finally succumbed to septic pleuro-pneumonia, which was present at the time of the operation.

It therefore gives me great pleasure to present this patient, upon whom I have recently operated for the relief of this condition with successful result, it being the first in Baltimore. I shall today give only a brief outline of the clinical history.

Mr. H., aged twenty-nine years, had a severe illness ten years ago, which, as far as his statements go, lead to the belief that it was osteo-myelitis of the arm. This was cured after repeated operations.

On the 16th of last December he was attacked with facial erysipelas, for which he was treated by Dr. Chas. F. Blake, and relieved in about a week. A few days later he had an attack of acute otitis media of the left ear, and his physician punctured the drumhead. Pain continued and increased, and on January 6 he entered the City Hospital.

His condition at this time was as follows: There was severe and continuous pain in the head and neck, marked sensitiveness to firm pressure over the mastoid, and deafness of the left ear. The drum was somewhat reddened, but not bulging, and showed no other pathological changes. The spot where the incision had been made was visible and had closed. His temperature was 101.2°. On examination of the blood extra-corpuscular hyaline bodies were found, and he was therefore given quinine sulphate, 10 grs., three times a day. The temperature fluctuated between

99.8° and 100.8° until the evening of January 9, when it rapidly rose within a few hours to 105.2°, without the slightest chill. The temperature on the following morning was 100.5°. He was operated upon on this day. As a preliminary to the mastoid operation, a free incision was made in the drumhead, and a large amount of pus escaped. On opening the mastoid the bone was found to be excessively vascular and somewhat softened. The antrum was opened and thoroughly cleaned, and then the apex of the mastoid was freely exposed. In the posterior portion of the tip there was much diseased bone.

Having removed every portion that was found to be diseased, the wound was packed with iodoform gauze. The patient's condition improved somewhat after the operation, and the pain, which had continued without intermission up to the time of the operation, was relieved.

On the afternoon of January 11, however, the temperature again rose to 104°, falling to 101° the following morning, and again rising to the former point in the afternoon. None of these rises of temperature were accompanied by chills. On the 14th and 15th the temperature fluctuated between 100° and 103°. On the 16th it fell to 99.5°, after which there was again a gradual rise until 1 P. M. on January 17, when it reached 105.2°. During the time that had elapsed since the operation quinine (Warburg's tincture) and arsenic had been given without effect. The blood had been frequently examined and no trace of leucocytosis found. This fact, together with the absence of chills and the great relief of pain after the first operation, made the diagnosis of thrombosis of the lateral sinus very doubtful, but when the temperature rose on the 17th of January to 105.2° we assumed that there must be disease of the lateral sinus, and determined to operate.

The mastoid was freely opened, the antrum exposed much more widely than before, then an incision was carried from the middle of the wound backward. The periosteum was removed from the bone, and we proceeded to expose the lateral sinus. The sinus was laid bare forwards and backwards, in order to find, if possible, where the disease took its origin. The sinus appeared to be normal, but in one part showed slight bluish discoloration. We made a very small incision, and finding that there was no hemorrhage, opened the sinus freely and removed the outer wall. At first we met a solid dark thrombus, but as we approached the anterior portion of the sinus a very large amount of pus escaped and continued to flow out. Whenever the patient coughed more pus was forced out of the lower end. We opened the sinus until we reached a point near its union with the jugular vein, when bleeding occurred, and then we proceeded backward and upwards, until we got free hemorrhage. The entire extent of the sinus opened measured about two and one-half inches. The jugular vein was not ligated. Cultures were made of the pus from the sinus and streptococci developed. After the operation the patient's temperature fell, and for a number of days remained between 101° and 102°, with good

pulse. At the end of a week or ten days we found that whenever dressings were allowed to remain longer than a day or two there was rise in temperature.

On January 27, ten days after the second operation, the temperature again rose to 105°, due to slight retention of pus in the wound.

On February 1 the patient, after having been several days with normal temperature, got a rise of temperature to 105°, accompanied for the first time by a severe chill. This was due to the retention of a large amount of pus in the posterior portion of the sinus, which had closed more rapidly than was desirable. Since its evacuation the temperature has remained normal. The patient rapidly improved, regained his great loss of weight, and is now (almost three months after last operation) in good health. There is still a small fistulous canal leading toward the antrum, which we hope will soon close.

In conclusion, I wish to direct your special attention to the absence of leucocytosis, and still more to the absence of chills in this case.

Current Literature.

MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

ON THE TREATMENT OF FATTY HEART. Schott. *Medical Record*, 1900, March 24, p. 490.

Our views as to the treatment of general increase of fat in the body, and especially fatty heart, have changed so markedly during the past fifty years that this article, from the pen of one of the originators of the most popular of modern methods of cardiac therapeutics, is extremely valuable.

After describing the three varieties of fatty heart usually recognized (1. That in which the fat lies as an overgrowth or penetrates between the muscular fibers; 2. Fatty degeneration of the muscle, and 3. When the fat tissue fills up, as it were, the lacunae of the muscular substance), and calling attention to the fact that what we usually understand by a "fatty heart" is either an overgrowth or intermixture of fat, or a condition of fatty degeneration of the heart muscle, or, not infrequently, the simultaneous coexistence of these two conditions, Schott describes in detail the symptoms of the condition and the determination of a diagnosis.

Among the important symptoms he mentions especially "an easily-induced sensation of fatigue in a person having an abundant deposition of fat over the body in general, or more especially upon the chest and bowels, with difficult breathing, feeble, frequent and easily-compressed pulse, with final dilatation of the heart," the presence of the ictus cordis, a condition of general

plethora or fullness of the skin, a sense of straining in the bowels, etc. He, however, insists that in many cases these symptoms cannot be regarded as absolutely unmistakable, since they may be met with in other conditions, and that only long experience and careful study of each individual case will lead to the correct diagnosis.

"The prognosis depends chiefly upon the state of the cardiac muscle, the duration of the disease and its symptoms, and, further, upon the etiology, age of the patient, etc. The stronger the heart muscle, the less advanced the state of degeneration, the younger the patient, the more normal the blood, the better will be our chance of curing the evil."

Schott then discusses the various pharmacological modes of treatment of obesity which have been in vogue, the use of drugs to induce nausea and vomiting, bleeding, drastic purgatives, milder purgatives, mineral waters, either those containing the sulphate of soda, as those of Marienbad and Carlsbad, or the milder saline waters of Kissingen, Nauheim and Kreuznach, the use of iodine and its preparations, and the use of thyroid and ovarian extracts, and from this study he comes to the conclusion that this mode of treatment has proven always unsatisfactory, and even dangerous in many cases.

He next takes up the new procedures inaugurated about the middle of the present century, which had as their object the dietetic and mechanical forms of treatment. After discussing the proposed dietetic measures of Harvey, Banting, Ebstein, Schroth and Tarnier, he calls attention to the dangers of them all in furnishing an insufficient quantity of some of the essential food constituents, basing his beliefs upon the experiments of Pettenkofer and Vort, and shows how even a modern system, such as that of Oertel, is dangerous in certain cases, due to his severe reduction of liquids and his well-known climbing system; so that Schott concludes that "of all systems of reduced diet in the treatment of obesity and of special heart diseases which have been proposed of late years it may be said that they are all dangerous," as by their use in many cases the muscular and nervous systems are sure to suffer, although, of course, combined with other therapeutic procedures, certain dietetic measures are advisable.

Schott then takes up the various modes of mechanical treatment—"mountain climbing," as advised by Stokes and Oertel ("Terrain Kuren"), whereby patients walk up hills of varying steepness and length, and the use of various machines, such as rowing machines, chest weights, and the apparatus of Gaertner, Nicander, Zarder and Herz—and concludes that these, too, are dangerous, as, although fresh air and exercise are of extreme importance, such violent exercise should never be used at first, because they give rise to the dangers of overstraining and further weakening an already weakened heart.

Schott then proceeds to carefully describe the treatment inaugurated by his brother and himself, consisting in graded exercises

against resistance, the amount of the resistance being regulated by a skilled assistant, and being carefully determined by a study of the patient's pulse, respiration and general condition during the exercises, combined with the use of stimulating baths of gradually increasing strength, which are supposed to bring about a reflex contraction and increase of tone of the muscles, especially the cardiac muscles, by an irritation of the nerve endings in the skin. Besides this, careful attention is paid to diet, rest, exercise, etc., and especial care is taken that the patient is never allowed to be overfatigued.

The baths are saline baths, containing a certain amount of calcium chloride and carbon dioxide gas, and by varying the amounts of these two constituents and the temperature of the bath we are able to vary the stimulating effects of the baths within very wide limits. Both the resistance in the exercises and the stimulating power of the baths are increased as the patient's condition improves.

Schott has reported numerous cases of marked improvement, and Neesen (*New York Medical Journal*, 1900, March 10, p. 325) reports six extremely interesting cases materially benefited by this treatment. Some of these cases were of valvular, and others of myocardial disease, but all showed marked improvement in every respect; in fact, in every case a complete disappearance of the painful symptoms took place.

Although the treatment requires much time and patience, it is so rational, and such brilliant results have been obtained by its use, that this review has gone beyond the limits originally intended, in the hope that more physicians will use this method, especially in those chronic cases of fatty heart and myocarditis, where other treatments have proved unsuccessful, so that a sufficient number of cases may be brought together to determine definitely the value of this dietetic-balneological-gymnastic treatment.

* * *

INFECTION THROUGH THE TONSILS, ESPECIALLY IN CONNECTION WITH ACUTE ARTICULAR RHEUMATISM. Packard. *Philadelphia Medical Journal*, 1900, pp. 914, 957.

In an extremely complete and valuable article Packard discusses the subject from many standpoints, but pays especial attention to infection through the tonsils as an etiological factor in acute articular rheumatism. He first reviews the literature of the bacteriology of the mouth and pharynx, and shows how in a considerable proportion of cases the mouth is the constant habitat of many pathogenic micro-organisms, especially streptococci and various staphylococci.

After discussing the probable functions of the tonsils, as seats of formation of leucocytes, as guards at the orifice of the respiratory and digestive tracts, and as suppliers of a lubricating fluid to facilitate the passage of food through the isthmus of the fauces and the esophagus, he devotes the largest portion of his paper to

a consideration of the various diseases whose infection seems to have been definitely introduced through the tonsils.

Among the diseases definitely consecutive to an acute tonsillar angina, he reports from the literature and from his own experience cases of endocarditis in great number, of pleuritis, of synovitis, erythema nodosum and multiforme, and morbilliform, scarlatinal, urticarial, and herpetic cutaneous eruptions, and chorea.

Packard then discusses at length the recent work upon the bacteriology of acute articular rheumatism, especially in relation to the presence or absence of an acute angina preceding or synchronous with the onset of the rheumatic attack, and having reported a number of cases in point, comes to the following conclusions:

"1. The tonsils are active and useful organs, whose function it is to offer a barrier to the entrance of organisms into the deeper tissues at a point which, by its location and construction, is very open to infection.

"2. The tonsils act in this respect as do other lymph-adenoid tissues in the body, as is best exemplified by the lymphatic glands.

"3. That during the course of or following tonsilitis we may have occurring most of the important complications of typical acute articular rheumatism.

"4. That acute articular rheumatism is an infectious disease, dependent possibly on no one organism, but upon a variety of bacteria.

"5. That the phenomena of rheumatism can be accounted for by toxin-absorption.

"6. That the toxin causing rheumatism may be produced by an attenuated micro-organism.

"7. That it is possible that the frequent entrance of the micro-organism by way of the throat may explain the fact that we have acute articular rheumatism developing after an invasion of the throat, rather than ordinary septicemia or pyemia, for the reason that just beyond the port of entry there is situated a collection of lymph-adenoid tissue capable of restraining the growth and virulence of micro-organisms attacking the membrane which it attacks.

"8. That the terms rheumatic pleurisy, rheumatic purpura, rheumatic erythema and rheumatic sore throat should be used with less freedom, and that it would be more correct to look upon them as a result of infection, whether accompanied or not by articular phenomena, rather than as latent, aborted or incomplete forms of a condition produced by an unknown, mysterious and intangible rheumatic poison."

* * *

SCARLET FEVER. Gradwohl. *Philadelphia Medical Journal*, 1900, March 24, p. 683.

Gradwohl gives in a short article upon the "Etiology of Scarlatina" the results of his bacteriological studies carried on in an attempt either to prove or refute the observations of Class of Chicago upon

this disease. As will be remembered, this latter investigator, while examining cultures taken from the throats of patients with various forms of angina, noticed the frequent occurrence of a diplococcus in those cases in which the angina was scarlatinal in origin. Later he separated the diplococcus from the throat, scales of skin, and blood of individuals suffering with scarlatina, and reproduced the disease in mice, swine and guinea-pigs by means of this micro-organism. This view of the etiologic factor of scarlet fever is thus opposed to the view of Klein and others, who lay especial emphasis upon the streptococcus as the microbic agent of scarlatina.

Gradwohl has examined seven cases bacteriologically and has obtained results in perfect accord with those of Class. In the first three the scales and the secretions from the throat alone were examined, but in the remaining four the diplococcus was found in pure culture in the blood, besides being also found in the scales and sputum. According to his investigations, the micro-organisms can be found in any one of these sources from the first week until the period of convalescence. In the case of the scales and the throat, the micro-organism was not at first obtained in pure culture, but was subsequently isolated by plating. In one case it was found in pure culture in the urine.

Gradwohl carefully describes the cultural and morphological peculiarities, and gives it the name diplococcus scarlatinae. "It is a diplococcus of varying size, changing its form and size under artificial growth conditions, attaining a larger size with frequent transplantation, sometimes becoming so large that it looks like a diplobacillus." It is pathogenic for mice, guinea-pigs and swine; non-pathogenic for dogs, cats, white rats and rabbits. In the susceptible animals which were given the disease experimentally the diplococcus was found in the organs after death, an acute nephritis was constantly found, and in swine a rash appeared eight to ten days after inoculation.

Although Gradwohl's results are of great interest, whether or not Class and he have discovered the true etiological factor in scarlatina can only be determined after much more extensive investigations upon the subject.

In this connection it will be of interest to recall the conclusions of Stickler (*Medical Record*, 1899, No. 363), who had an opportunity to follow twelve cases of scarlet fever from the moment of infection. In this series the incubation period varied between twelve and seventy-two hours, the average being thirty-two hours. The time between the appearance of the eruption and the desquamation varied between three and nine days, the average being seven days, while usually about twelve hours after the inoculation vomiting took place. This is not only of extreme interest in connection with the etiology of the disease and the determination of the most dangerous infectious period (the period during which the angina is most marked), but since the infection in each of these cases came from the pharynx of a single patient,

also suggests the especial importance, as a prophylactic measure, of a careful toilet of the nose and throat of all persons with scarlet fever, and the immediate sterilization of the secretions from these sources.

In connection with the contagious diseases it is of interest to again call attention to Dukes' (*Lancet*, 1899, April 29) conclusions as to the incubation period of scarlet fever, varicella, parotitis, and rötheln. According to his experience—and for twenty-eight years he was constantly thrown with cases of the diseases—the incubation period of scarlet fever varies between one and nine days, the greatest number falling sick on the second and fourth days after exposure; in varicella between thirteen and nineteen days, the fifteenth day being the day upon which the eruption usually appeared; in rötheln between twelve and twenty-two, and in measles between eight and fourteen days, the usual length of incubation in these diseases being sixteen and eleven days, respectively, while in mumps the incubation period varied between fourteen and twenty-five days, the average being nineteen.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

THE PATHOLOGY OF CARCINOMA OF THE STOMACH. Cuneo. *Revue de Chirurgie*, April 10, 1900.

Cuneo furnishes a very valuable contribution on this subject. He discusses exhaustively:

1. The manner of local extension of carcinoma of the stomach, and,

2. The condition of the lymphatic glands in the early stages of carcinoma of the stomach.

I. Extension in the case of cancer of the stomach, and particularly of the pylorus, presents three peculiarities of practical importance: (A) The early and extensive involvement of the submucosa; (B) The tendency to involve the lesser curvature; and (C) The customary integrity of the duodenum.

(A) Involvement of the submucosa appears very early, the muscularis mucosa presenting a very poor barrier between the submucosa and the epithelium. The loose tissue and abundant lymphatics permit rapid progress of the cancerous growth.

As a general rule, the submucosa is more extensively invaded than the mucosa itself, and not only does the submucous diseased tissue pass the zone invaded in the mucosa, but infected lymphatics are found running out more than two centimeters beyond the point of submucous infiltration (Fig. 1). This submucous involvement shows itself sometimes by an increase in the consistency of the internal surface of the stomach, by the adherence of the mu-

cosa to the underlying layer, and by a whitened look and hardness like that of the invaded zone in the mucosa itself. This more extensive involvement is not to be seen by inspection of the mucosa, and it is absolutely insufficient to cut the stomach only one centimeter from the *apparent* limit of the neoplasm.

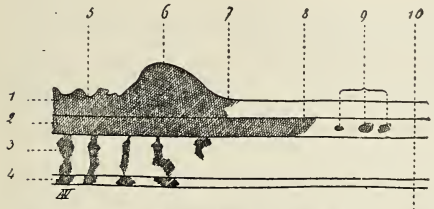

FIG. 1.—Schematic drawing to show the growth of cancer of the stomach. 1—mucosa; 2—submucosa; 3—musculosa; 4—serosa; 10—the point of incision necessary for complete removal far distant from the apparent limit of infiltration.

(B) The lesser curvature was found involved nine out of eleven times, and this has also been frequently noticed during gastro-enterostomies.

External involvement of the lesser curvature is recognized by:

(a) Considerable hardening of the region.

(b) A white pearl-like plaque, which occupies a variable area, and on which often appear hard, rounded elevations, seeming to emerge from the thickness of the stomach wall. From this plaque hard lines branch off, and either descend the two sides of the stomach, growing smaller, or, ascending, lose themselves in the thickness of the small epiploica. The gastric insertion of this peri-

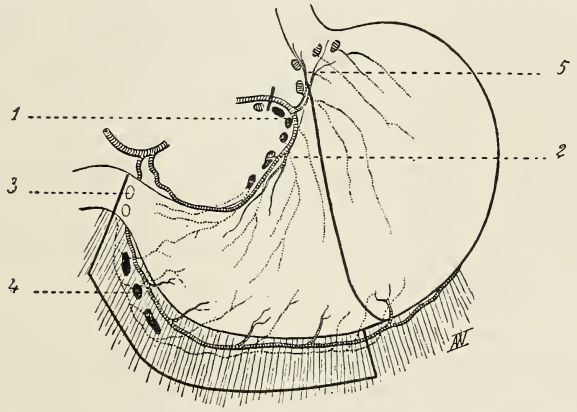

FIG. 2.—Scheme to show the paragastic lymphatics, and the incisions required to avoid leaving gland metostasis. The glands first to be involved are represented very dark. 3.—Retropyloric glands (involved late), excision difficult and not generally necessary. 4.—Subpyloric glands.

toneal fold is transformed into a sclero-lipomatous mass, which encircles the coronary vessels (gastric artery).

Whenever macroscopically changed the glands of this region microscopically show neoplastic involvement, and not merely an inflammatory condition.

The involvement of the lesser curvature is via the lymphatics. Histologically, the lymphatic current of the stomach is toward

the lesser curvature, and pathologically lesions of the lymphatic system (trunks and glands) on a level with the superior border are frequent and intense (Fig. 2).

The general law is that epitheliomata tend to travel toward the lymphatic hilum of the invaded organ.

Very extensive resection of the lesser curvature is therefore necessary, and it is indispensable to get out all indurated tissue, and not be deceived by the hope that some of it is purely inflammatory.

Usually in cancer of the pylorus the lesions of the lesser curvature stop where the coronary vessels enter the stomach, which is also where the lymphatic pedicle leaves, in order to pass into the thickness of the coronary ligament. It is to the left of this point, as near as possible to the cardiac end, that the incision should be made, even when the lesser curvature is apparently healthy (Fig. 2). It is the only practical means of completely excising the glands of the lesser curvature.

(C) The majority of surgeons admit the usually healthy condition of the duodenum. Carle and Fantino only three out of fifteen times found epithelial lines extending below some of the glands of Brunner, and from one to three centimeters from the pylo-duodenal junction.

The author found the duodenum only once out of eight times presenting both macroscopic and microscopic evidence of disease, and four showing slight microscopic evidence. Once were the cancer cells found one centimeter from the pylorus.

The author believes that everything goes to prove the general integrity of the duodenum, but disagrees with Mikulicz, who only resects five to ten millimeters when it is macroscopically healthy, as he regards the first centimeter as always suspicious. He therefore adopts two centimeters from the pylo-duodenum junction as the minimum distance for resection.

II. Like all epitheliomata, cancer of the stomach tends to invade the lymphatic glands.

For convenience, the neoplastic infection of the glands is divided into "immediate adenopathy" and "distant adenopathy." "Immediate adenopathy" only concerns us here, because the involvement of these nearby paragastric lymphatic glands still permits of cure by surgical intervention. But after their more or less complete degeneration the more distant glands become diseased and contraindicate surgical procedure.

In eight autopsies and one gastro-enterostomy the glands showed involvement, and in only two out of thirteen cases of gastrectomy were they free from disease.

The different glandular groups are never equally involved. The group at the lesser curvature is earlier and more frequently diseased than the subpyloric, and the retro-pyloric glands are only rarely involved.

In nearly half the cases neoplastic elements were found in the

interior of the lymphatic trunks which end in these degenerated glands.

It is necessary to take out all the paragastric glands, and as much as possible in the same piece with the tumor mass. The glands placed against the lesser curvature present very close adhesions with the coronary vessels, and extirpation of the isolated glands is apt to be incomplete, and may lead to fatal wounding of the vessels. Hence, even when the cancer extends only slightly beyond the pylorus it is well to make the incision through the stomach as near as possible to the cardiac end (see Fig. 2); you can then lift out with the tumor the glands of the coronary chain almost *in toto*, leaving only those next to the cardiac orifice and those of the coronary ligament, which can be taken out later.

The two last-mentioned groups belong to the "distant adenopathy" class, and consequently are often healthy.

Extirpation at the subpyloric glands does not usually present any difficulty. In some cases they are adherent to the transverse meso-colon, which may be injured in removing the glands. Sometimes glands can be found at the point of adhesion of the gastro-colic ligament with the transverse meso-colon. This is in a dangerous zone, under the anastomosing vascular arch.

Extirpation of the retro-pyloric glands, fortunately infrequently required, is always difficult because of the intimate relation between them and the anterior surface of the pancreas and with the gastro-duodenal artery. A wound of this artery can lead to hemorrhage difficult to stop. Where these glands seem involved it would be well to ligate the gastro-duodenal artery at its origin before trying to remove the glands.

* * *

THE OPERATIVE TREATMENT OF FRESH FRACTURES. Scudder. *Boston Medical and Surgical Journal*, March 22 and 29, 1900.

Scudder contributes an interesting paper on this subject, presenting a careful statistical study of the results obtained in fractures of the lower extremity at the Massachusetts General Hospital.

There were sixteen fractures of the hip. The result (with non-operative measures) was almost perfect in three cases, all fairly young. More or less impairment remained in thirteen cases. There were thirty-six fractures of the thigh, all treated by coaptation splints and extension. Of fourteen cases in childhood, all have perfect functional results, slight stiffness and pain being present in some cases. There were sixteen cases in adults below fifty years of age—five perfect results; the other eleven have limited motion at the knee-joint, pain, and weakness of the limb. In five cases older than fifty there were no perfect results; swelling, pain, limitation of motion at knee-joint, and non-union in some.

There were fifty-one cases of fracture of the patella. Of these fifteen were operated upon, with perfect result in seven (46 per cent). Of thirty-six cases treated expectantly, sixteen (44 per cent.) were about as good as the well leg. Although these figures

show a remarkable sameness in result in the two methods, there is a marked difference in length of convalescence in favor of the operative cases.

There were thirty-five cases of fracture of the leg, all treated by immobilization with splints, fourteen being open fractures. Of the twenty-one cases of closed fractures, only eight (40 per cent.) had perfect results. Of the fourteen cases of open fractures, only three (21 per cent.) had perfect results, the others complaining of flat foot, pains, cramps, swelling, etc.

In fracture of the hip in old age, 81 per cent. of the results are poor. Much could be done by the operative treatment of pegging and clamping.

In fractures of the thigh in childhood all the results were perfect; in adult life, 31 per cent.; but in old age none were perfect. These certainly demand operative treatment.

As to the treatment of fracture of the patella, Scudder says there are now four methods to be used:

1. The old expectant method; no motion allowed for six months.
2. The new expectant method, with early massage and use of the limb.
3. The old operative method, by wiring and long immobilization.
4. The new operative method, with early use and massage.

The second and fourth methods are the most satisfactory, both providing for early use and massage—the method of Championnière. Scudder says that massage properly applied will improve the ultimate results of fractures near to joints under both the closed and open treatments. Massage has been too little used.

The operative treatment should have no mortality and no sepsis. The denuded bone, comminuted fragments, the great mass of blood-clot, the injury of soft parts, if seen in a superficial wound would receive attention. The invariable presence of these in greater or less degree should lead to their treatment in a rational way by incision.

The open (operative) treatment should only be attempted by a skilled surgeon, and should not be attempted on the aged. It is an operation for young adults, particularly laboring men. When possible the bones should be reduced without cutting the broken ends. Various devices may be used for fixation—silver sutures, pegs or screws of ivory or steel, the Parkhill clamp, etc.—that method to be chosen which immobilizes the best. One or two strands of silver are not sufficient, and often the Parkhill clamp is more satisfactory. It is wise always to immobilize the part upon a splint before finally fixing the bones in position, as otherwise it becomes loosened later. Early massage and active and passive motion are desirable after four weeks. The ideal result is perfectly-restored function, and no deformity. The methods now in use do not give many satisfactory results (70 per cent. poor). There is need for a radical departure in the treatment of closed fractures,

especially when the present methods fail to secure reduction and immobilization.

The open method will then be used more and more in oblique fractures of the shafts of long bones, in complicated fractures about joints—in all fractures associated with injury to nerve trunks or great blood-vessels.

THE TREATMENT OF FRACTURES BY MASSAGE.

In marked contradistinction to Scudder's insistence upon perfect immobilization are the statements of Lucas-Championnière (*Medical News*, January 6, 1900), who says that moderate movement favors the repair of fractures, the callus being greater and more solid. In every case in which moderate movement does not threaten to cause deformity the limb should not be immobilized, but an attempt should be made to keep up passively the movements necessary to preserve the vitality of the parts. Massage for a fracture should be applied to all parts of the limb, muscle, ligaments, effusions, but never at the site of fracture. It should be gentle and always toward the trunk. It should never give pain, and should always be followed by passive motion of the joints of the limb, which should also be accomplished without pain.

Massage prevents muscular atrophy, causes resorption of exudates, effusions, etc., and leads to a much more rapid repair of the break than absolute immobilization, and no chance is given adjacent joints to get stiff.

During the past four years the author has so treated sixty fractures of the clavicle, forty-five fractures of the humerus, 110 of the radius, seventeen of the forearm, thirteen of the olecranon, three of the scapula, five of the femur, twenty-nine of the tibia (seven above the malleoli), fifty of the fibula, and thirty-one of both malleoli. Among these, those factures near the middle of thigh or leg were treated by apparatus, with immobilization, in the intervals between massage and passive motion. No irremovable apparatus is now used, and generally nothing is employed.

This method, says Championnière, is now thoroughly established, and gives more rapid and satisfactory results than any other method.

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THE SURGICAL TREATMENT OF KIDNEY TUBERCULOSIS. F. König. *Deutsch. med. Wochenschr.*, 1900, No. 7; ref. *Centralbl. f. Harn u. Sexual Organa*, Bd. XI, Hft. 4.

Professor König has had no favorable experiences with nephrotomy, and strongly advises nephrectomy in nearly all cases.

The determination of the existence of the other kidney is not difficult to make. When a solitary kidney is present one finds generally in the male a congenital defect of the testicle of the opposite side. The cystoscope will also show the presence or absence of two functionating ureters.

It is much harder to determine the soundness of the second kidney. König places little confidence in ureteral catheterization in the diagnosis of tuberculosis, and as little in catheterization after a suprapubic incision. The recent methods of determining whether the second kidney is functionating by the amount of urea, the permeability for coloring matters, the determination of the freezing point of the urine, are not considered trustworthy.

At the same time he has grown constantly bolder, and has increased the indications for nephrectomy. Neither a general tuberculosis of the lungs, nor tuberculous disease of the testicles, prostate or bladder, nor even a simultaneous disease of the other kidney has prevented his operating in some cases, for in spite of these he has often seen a betterment of the general condition—healing of the bladder tuberculosis, encapsulation of the prostatic foci, etc. "Patients who seemed on the point of death afterwards enjoyed either complete or relative good health."

Of eighteen patients, six died immediately or soon after the operation; three died of anemia.

König draws the following postulates:

There are two forms of kidney tuberculosis to differentiate: (a) The solitary tuberculosis of the gland substance without communication with the capsule; (b) The pyelitic form of tuberculosis of the kidney.

While we can diagnosticate the solitary form only exceptionally, the pyelitic form can be recognized with great certainty even without the presence of tubercle bacilli.

It is not always possible to determine the soundness of the other kidney.

Kidney resection and nephrotomy are very rarely curative of nephro-tuberculosis. Extirpation is the only sure operation, and if one does not wish the patient to die without attempt being made to save him the operation must often be done without proof that the pyelitis is tuberculous, and without a positive knowledge of the soundness of the second kidney.

It is shown by numerous cases that even in the presence of considerable disease of the second kidney, and with involvement of the bladder, the testicles, or the prostate, it is justifiable to operate, since such operations at least prolong life and make it more comfortable.

* * *

Surgical Intervention in Certain Forms of Medical Nephritis. Pousson (French Society of Urology). *Jour. Cut. and Gen. Ur. Dis.*, February, 1900.

The good results and freedom from danger of operations on surgical kidneys induced the author to attempt surgical measures in certain nephritides, usually looked upon as medical, which threaten the life of the patient. He was able in a case of nephritis, with profuse hematuria and grave uremia, to check the disease by

nephrotomy. Before operation there was little urine secreted, little urea, and much albumen. After incision into the kidney the secretion of urine was re-established, the albumen diminished, urea increased, and the uremia disappeared. The results in twenty-four instances of intervention in nephritis were as follows: In nine cases of nephritis with hematuria there were seven nephrectomies with two deaths and five recoveries, one nephrotomy (?) with recovery, one simple exploration with recovery. In four cases of subacute infectious nephritis there were four nephrotomies with recovery.

Of eight cases of acute infectious nephritis there were three nephrectomies with recovery, and five nephrotomies with two deaths and three recoveries.

As to therapeutic results: In the first set the hematuria disappeared, and the urinary secretion and urea were re-established. The pain abated in the nephralgias, the albumen in the subacute nephritides, and the fever and other symptoms in the severe infectious cases disappeared. Nephrotomy probably cured suppression of urinary secretion by the relief of intrarenal tension.

In the cases cited the disease was found by means of cystoscopic examination to be unilateral. [This is probably often the case in early acute nephritis, and the possibility of removing or curing one kidney before the other becomes involved opens up a new field for surgical treatment.]

* * *

THE ETIOLOGY AND TREATMENT OF INGUINAL HERNIA IN THE YOUNG. Russell. *Lancet*, November 18, 1899.

Oblique inguinal hernia occurs in the young subject as the result of a developmental defect, which takes the form of a congenital sac, and it occurs under no other conditions.

It is of first importance to realize the true relationship, or rather absence of relationship, between inguinal and femoral hernia, for they are radically opposed to one another, both as to origin and nature. Femoral hernia is the type of the true acquired hernia. The anatomical structures concerned are eminently favorable to it; the clinical manifestations are alone consistent with it. In the case of inguinal hernia the anatomical structures would appear to render acquired hernia extremely improbable, and the evidence appears quite conclusive of the presence of a congenital peritoneal sac as the essential factor in the production of oblique inguinal hernia.

Autopsies show that many more children have a patent processus vaginalis than develop hernia—"enough to fill the ranks of the ruptured children and leave a considerable surplus of patent processes without any hernia." The cases that develop oblique inguinal hernia in after-life are probably of this surplus, for there is no evidence in support of the belief that the sac is ever non-con-

genital. If the congenital sac is responsible for the hernia, then removal of the sac should cure the hernia in children. This has been proven correct by operations upon forty-two cases of oblique inguinal hernia in children (under twelve). Of these, thirty-six have been seen or heard from after periods of from six months to three years, and in no case has there been a recurrence.

The operation consists simply in separating the sac from the cord, and after making traction on it, ligating the neck high up. The remainder is then excised, and the skin wound closed without any other sutures being used. It is not necessary even to divide the fibers of the aponeurosis of the external oblique, as the sac can be drawn down sufficiently without this procedure.

Operations like the Bassini are only necessary in the adult in the presence of the gaping opening seen in old standing hernia. In recent cases they are unnecessary, ligation of the sac being sufficient.

[No corroborative statistics are given, however.]

* * *

Experiments on Intestinal Suture. Edmunds and Stubb. *Lancet*, April 14, 1900.

The following experiments were made to determine the best method of circular suture of the intestine. The methods contrasted were: (1) Halsted's inflated rubber cylinders; (2) Murphy's button; and (3) Laplace's intestinal forceps. Seven experiments by each method were made on dogs. All recovered where Halsted's cylinders were used, five where Murphy's button was used, and four where Laplace's forceps were employed. The failures were all due to non-union.

From actual results the verdict is entirely in favor of Halsted's cylinders. The effect of the inflated cylinder is to push back the mucous membrane, which otherwise always is everted so much as to interfere materially with the suturing of the outer coats, and the coaptation of the peritoneal surfaces. The cylinder also prevents the escape of the intestinal contents, thus dispensing with clamps.

Murphy's button is not trustworthy unless external sutures are applied. If this is done the time of the operation is lengthened, and the instrument becomes in part an apparatus for facilitating the application of sutures. After the Halsted operation the animals passed formed stools on the next day. This is not so with the button, and the danger is not over till the button is expelled.

The Laplace forceps were very unsatisfactory, and afforded no aid in suturing, and in three out of seven cases failed. The authors think that the difference in the thickness of the muscular coats of the intestines of dogs and men does not invalidate their conclusions.

PATHOLOGY AND HYGIENE.

Under the Supervision of Robert Reuling, M.D., Baltimore.

Upon the Part Played by Mosquitoes in the Propagation of Malaria. A Historical and Critical Study. By Geo. F. Nuttall, M.D., Ph.D. *Journal of Tropical Medicine*, Vol. II, Nos. 20 and 21.

Although the part played by mosquitoes in the etiology of malaria has recently appeared in many medical journals as well as in secular literature, so that both medical and general readers are now somewhat familiar with the subject, it is of such practical importance that a review of a portion of Nuttall's very instructive article will be of interest, especially those portions of the article dealing with the mosquito theory in this country, and with the means employed in former times for the prevention of malaria by protective measures against the bites of insects.

The view that mosquitoes serve as vehicles for the malarial infection has long been entertained in various parts of the world. Barker (February 3, 1900) writing of malaria in the Philippines, says: "Not uninteresting is the statement in certain Jesuitical records of Mindanao that the natives of that island recognized as far back as two centuries ago a relation between the intermittent fevers and the prevalence of mosquitoes." Sforza (1899), as also Grassi (1899), state that Lancisi (1717) considered that mosquitoes served to propagate malarial infection. I have not been able to verify this interesting reference. Koch, in a report on his observations in German East Africa, states that "the negro of the Usambara mountains, who acquires malaria when he descends to the lowlands, has also convictions on the subject." He calls the disease *mbu*, and if one asks him where he acquired it, he replies that "there are insects down there which are also called *mbu* (*i. e.*, mosquitoes), like the disease; these had stung him, and that is how he had acquired the disease." The mosquito-malaria theory has certainly existed a long time in the United States. It has long been known, and this in different parts of the world, that curtains, gauze veils, mosquito nets and the like protect against malarial infection. In 1848 Nott of New Orleans published an essay on yellow fever, in which he also refers to malaria, as if the mosquito theory had already been advanced, and he gives grounds for his belief that the mosquito also gives rise to yellow fever. In 1883 a most elaborate argument was published by King, in which he brings together a mass of evidence on the subject, vastly more, in fact, than other authors have since gathered, and I shall often have occasion to refer to his paper. It is curious to look over the more recent literature on the subject to see how writers have rediscovered the mosquito-malarial theory. In France the theory is ascribed to Laveran, in Germany to Koch and Pfeiffer, in England to Manson, whilst in Italy the names of Bignami, Mendini,

and lastly Grassi, are identified with it. By far the most masterly exposition of the theory was written by King, and I can do no better than quote his words: "While the facts to be presented cannot be held to prove the theory, they may go so far as to initiate and encourage experiments and observations by which the truth or fallacy of the views held may be demonstrated."

EVIDENCE IN FAVOR OF THE MOSQUITO-MALARIA THEORY.

1. *Malarial Season.*—The malarial season corresponds usually to a season of warmth and moisture, conditions which are most favorable to the development of the mosquito, and is checked at 0° C., at which temperature the mosquito is inactive. In many places malaria develops after the first rains; the latter may have formed pools, in which the mosquitoes multiply. Malaria disappears when the rains subside (Bignami), and so do mosquitoes. Malaria often ceases after excessive rains (Hirsch), for then the pools are often washed out and flooded; besides that, excessive rains are always injurious to insect life.

2. *Malarial Country.*—Low, moist places, swamps, jungles, the low seaboard and river estuaries and valleys, especially after inundations have subsided. In countries where irrigation has been introduced without regard to efficient drainage an outbreak of malaria, or an increase in the severity of the cases, has followed. We have an example in Southern California (Welch and Thayer).

3. *Conditions which afford protection against malaria and mosquitoes.*

Protection of the Body.—That closing the windows and doors at night, as well as the use of mosquito nets, gauze veils, etc., protect against malaria is a matter of long experience in malarious countries. Macculloch writes that by surrounding the head with a gauze veil the action of malaria is prevented, and that it is even possible to sleep in the most pernicious parts of Italy without hazard of fever. Oldham (1871) states that the Seevas of the Punjaub, who are employed in fishing and catching wild fowl, spend the whole night in their boats, under the reeds of the marshes, "unharmed in the midst of malaria," but they are wrapped from "head to foot" in a peculiar costume that completely envelops them, and which they always put on at sunset, and moreover a smoldering fire is kept in the boat (quoted from King).

It has been claimed that woods have the power of obstructing or preventing the transmission of malaria by the wind. In other words, they have been said to hold back the mosquitoes that are blown or fly there from a malarial foyer. Coons (cited by Hirsch) reports the following regarding the malaria epidemic in 1826 in Alabama: In the vinicity of Moulton, and situated half a mile from a swampy lake, was a large farm, on which all the people had previously been healthy. A thick wood which lay between the lake and the farm was cut down. This wood had hitherto served as a barrier to the winds coming from the lake. Of 150 persons living on the farm only three or four escaped the malarial infection. Opinions, however, do not agree as to the influence of trees

upon malaria. Celli (February, 1900), in fact, holds that "arboriculture of a malarial territory is favorable to the development of malaria." Investigations in Italy have moreover certainly shown that one species of malaria-bearing mosquito (anopheles bifurcatus) occurs in woods. Celli considers that the eucalyptus, coniferae and ricinus communis have in this respect been "the subjects of groundless praise."

Bodies of water lying in the course of winds coming from a malarial center are known to be protective. Ships anchored off a malarial shore, where the wind is blowing from the land, remain free from malaria unless they get quite close in, and even then the cases of infection are rare.

The Evidence of Sleeping Out of Doors at Night, or of Exposure After Sunset.—It is notorious that malaria is most dangerous when the sun is down, whereas it seems relatively inert during the daytime (Laveran). King writes: "With regard to the mosquito, however, it is well known that it remains, for the most part, during the day harbored in woods, weeds or low underbrush, and comes out after sunset and at night to indulge its blood-sucking proclivities." It is well known that sleeping out of doors after sunset is more dangerous than waking, "for it is undoubtedly true," writes King, "that while awake the person exposed will move about or brush away the insects, while he will submit to be bitten during sleep."

The Use of Fires.—King writes: "In malarial districts the use of fire, both indoors and to those who sleep out, affords a comparative security against malarial disease."

Racial Immunity.—The relative immunity exhibited by the negro race towards malaria is due, King thinks, to protective coloring. Besides, many negroes anoint their bodies with grease, whilst others emit an offensive odor from their persons. One or more of these factors may serve to some extent to keep off mosquitoes. Laveran (1896) states that delicate-skinned people and children are more susceptible to malarial infection, because they are more readily bitten by mosquitoes. Laveran (1898) attributes the immunity of the negroes to their thicker skin, and states that they are less subject to mosquito bites.

(*To be continued.*)

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THE BACTERIOLOGICAL DIAGNOSIS OF TUBERCULOSIS IN SUCKLINGS. A. P. Moskowitin. *Review of Russian Medical Journals*, Nos. 11-12, 1899.

Moskowitin undertook the task of learning to what extent one could recognize tuberculosis in sucklings by the use of bacteriological methods, and what practical results could be achieved by these methods. He examined not only the sputum of sucklings, but included in his investigations the examination of the feces, urine, and the pus from cases of purulent otitis. It was necessary to include these examinations, for in children frequently several organs show the lesions of tuberculosis. All agree that to obtain

sputum from sucklings is no easy task. Bulius advised to obtain specimens of the mucus which adheres to the mouth or throat, and examine these microscopically. Others cause the child to cough, and obtain by the use of a tampon the expectorated sputum from the throat before the child swallows. The author also devised a method of his own. He uses an ordinary tampon-holder, such as is used for laryngeal applications, and in this instrument he places a small pledget of absorbent cotton. The instrument is introduced into the child's throat so that the cotton is over the larynx, the left index finger being used as a guide, as in intubation. The slightest contact to the vocal cords results in a paroxysm of coughing, which causes the expectorated mucus to adhere to cotton tampon, and the small particles of mucus thus obtained are examined microscopically. Moskowitin found that in 5 per cent. of cases in which the first method was used the diagnosis of tuberculosis was made during life.

In 15 per cent. the diagnosis could be made by the second method. When the sputum was obtained by the author's method, however, the diagnosis could be made in 94 per cent. of cases of tuberculosis. The following results were obtained in his investigations, which show differences from the results of examination of sputum from adults: When tubercle bacilli were present they were found in the first specimens obtained in over one-half the cases. In 11 per cent. of his cases a typical miliary tuberculosis existed. In two of these cases tubercle bacilli were found in the sputum. The number of bacilli in the microscopical field varies greatly in children, so that numerically the bacilli bear no relationship to the intensity of the disease process, and neither does the consideration of their number allow of any prognostic inferences. Moskowitin is of the opinion that the complete disappearance of bacilli from the sputum after repeated examinations, provided this result is associated with improvement in the general condition, speaks for a favorable outcome of the disease. The gastric contents of twenty children were examined fifty times, and in 25 per cent. tubercle bacilli were found. In fifty tubercular sucklings tubercle bacilli were found in the feces twenty-seven times. A great number of bacilli in the feces points to ulceration in the intestine. In the urine bacilli were found in 8 per cent.—a rather low percentage when we consider that renal tuberculosis is very frequent in sucklings. The results of the author's examinations of the pus from cases of otitis media lead him to believe that such examinations for the presence of tubercle bacilli are of no great practical value, as the bacilli are difficult to find, and are found in only a very small number of cases.

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A Case of Multiple Myomata (14) of the Esophagus. Rudolph Pichler. *Prager. med. Wochensch.*, No. 38, 1897.

Pichler begins his article with a review of the cases of single myomata of the esophagus heretofore described. Pichler's case is therefore unique, in that as many as fourteen myomatous

tumors were found in the lumen of the gullet. They gave rise to no clinical manifestations whatever. The patient, a male, aged fifty, died of delirium tremens, the result of chronic alcoholism. The tumors, with a single exception, were confined to the mucous surface of the middle third of the esophagus, one tumor the size of a pea being situated near the junction of stomach and gullet; the others, higher up, were mostly larger, varying in size from that of a pea to the dimensions of a hazel nut. They were raised above the mucous membrane, but on palpation one could readily feel that the wall of the gullet was infiltrated. They were closely aggregated, so that some overlapped the others, and the tumors formed almost a complete ring. Microscopical examination showed that the tumors originated from the inner muscular layer, and in structure corresponded to the fibrous fatty myomata, showing little vascularity. Of special interest is the fact that they contained both striped muscular fibers and ganglion cells.

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THE RELATIONS OF OXYBUTYRIC ACID TO DIABETIC COMA. Magnus-Levy. *Archiv für Experiment. Pathologie, etc.*, Bd. XLII, 1899, Seite 149.

The entire results of these very complete and extensive experimental investigations can only be briefly reviewed here.

The author states that in all cases of marked diabetes oxybutyric acid in very large amounts is excreted in the urine (20-30 grammes per diem). The amount of alkaline substances which the animal organism can supply is not large, and insufficient to neutralize the entire amount of acid, so that the urine contains the acid in large amounts. The neutralization is principally effected by ammonia. Besides the oxybutyric and the acetic acid, which is really a product of the former, the presence of other acids play no quantitative part in diabetic coma. In the coma stage the amount of acid formed may be 160 grammes. This is due to the fact that oxidation is reduced. In patients dying of diabetic coma the acid is present in excessive amounts in the organs, while the urine may contain only small quantities. From 100 to 200 grammes are given as the calculated amount in the tissues of the body. This quantity is greater than that necessary to produce this form of acid intoxication in rabbits. Diabetic coma is therefore the result of an acid poisoning, in which, however, toxins may play a subsidiary *rôle*. This increased production of acid leads to a diminution in the alkalinity of the blood, whereby a reduction in alkaline constituent of the carbonates as well as the alkaline portion of the albuminates of the blood is brought about. The source of the oxybutyric acid can hardly be credited to the albuminates and carbohydrates. It is derived either from the fats, or is a synthetical product. The places of its formation are most likely the muscular tissue and the large glands. The alkaline treatment of diabetic coma, and also of such cases of diabetes without coma, but which show a highly increased excretion of ammonia, has certainly yielded the best results, and has now considerable experimental as well as practical evidence in its favor.

DR. WELCH'S FESTSCHRIFT.

On Friday evening, May 4, a dinner in honor of Dr. Wm. H. Welch was given at the Maryland Club by a number of the contributors to the magnificent Festschrift volume, which was presented in celebration of twenty-five years' work by Dr. Welch as a teacher and investigator.

Dr. Wm. T. Councilman of Harvard Medical School made the address of presentation, which was in part as follows:

"On this occasion, twenty-five years after your entrance into the medical profession, we, your students, present to you this volume. It contains a number of articles written by us, each of which contributes to the advancement of medical knowledge. We have chosen this method to tell you of our esteem and affection, for we feel that it is the highest and most enduring tribute we could lay before you; for, unlike any tribute wrought in stone or metal, it has the quality of increase. The results of the investigations here set forth will stimulate further investigations and lead to greater increase of knowledge. It is the work of men you have taught, who have received from you the inspiration which has enabled them, often amid great difficulties, to continue in the path along which you first led them. It is one thing to *tell* a man what is the right way; it is better to *show* him; but it is quite the best thing to take him by the hand and lead him along it. This it is which has made you a great teacher, for a teacher to be great must be a leader among men. You have taught us what is known. In your lectures you have presented to us, with a clearness that has never been surpassed, the known facts of medical science and the deductions to be drawn from those facts. We have learned from you the importance not of theory, but of definite knowledge. You have further shown us that merely to acquire what is known is not the true aim, but that he who would himself advance and contribute to the advancement of his fellows must seek to enlarge the bounds of knowledge.

"The importance of the work you yourself have done is recognized by the world. It has been marked by your characteristic clearness, thoroughness and fairness. In the work which you have inspired there has been absolute freedom of the worker. The work has been in a broad field, and the workers have had a clear sky above and fresh breezes around them. All branches of medical science have been enriched by this work. Its breadth is shown in the contents of this volume. We feel that you are a part of it, that our work is due to your inspiration. But your work as a teacher and leader has not been confined to those who have felt your presence; it has been far wider. Your influence has been felt in every part of the country, because each man who has gone from you has been a missionary to lead others into the light.

"One year after your graduation the Johns Hopkins University opened its doors. The central idea of the university, the idea with which it started, which distinguished it from other institutions of learning in this country at that time and gave it at once a high position in the world, is that it is the duty of a university both to impart knowledge and to increase knowledge by original research. In the medical education of that time there were few high ideals. There were numerous schools in which the medical

art was taught, but the university ideal, which aims at the advance of knowledge, had not entered into medical education. There were a few great teachers, but the principle was not recognized. The creation of the Medical School of the university was slow. First physiology, and then pathology were established as departments of the university.

"Sixteen years ago you were called to the chair of pathology in the university. There was no hospital to furnish material, nor students to teach. You began your work, and before the hospital was opened had grouped around you an earnest band of workers. Those of us whose fortune it was to have been with you in those early days can never forget them. When the Medical School was opened the ideals of the university had been established in its most important departments and were a controlling power. There sprang up at once that close union between the university and the Medical School to which, more than anything else, the marvelous growth and influence of the Medical School has been due. The Medical School was founded in the laboratories of physiology and pathology. There has been in the Medical School and the hospital a close union between art and science, an appreciation of their mutual dependence, which in its fullness was new to America. We have ourselves tried to do what we could to advance knowledge and to extend to others the ideals which we received from you. Your spirit lives in us, and we extend to you in this work the best expression of our affection, our esteem, and our gratitude."

Dr. Welch replied as follows:

"I have no words adequate to express my appreciation of this demonstration of your affection and loyalty. With a heart full of thanks I accept this magnificent volume of contributions to medical science by my pupils and co-workers, now and in the past.

"I thank you, Dr. Councilman, for your generous words in presenting this volume, even if I must believe that your estimate has far exceeded my merits. Although I have been kept in ignorance of the details of this undertaking, I know that my especial thanks are due to Dr. Mall and Dr. Flexner for its inception and conduct, as well as for the incentive to several of the contributions. Turning the pages I see how much is due to the marvelous artistic skill of Mr. Broedel, and I am not surprised to hear of the unselfish devotion of Dr. Hurd in the editorial work, nor that my old friend and colleague, Dr. Halsted, has been active in arranging for this occasion. To all who have honored me by their contributions to this volume I am deeply grateful, and the kind messages from many other pupils and associates have gladdened me.

"Nothing could afford me livelier pleasure and satisfaction than to have my name thus associated with a volume of contributions, which cannot fail to interest all workers in scientific medicine. I recognize among the contributors not only the names of those who have gained distinction as investigators, but also of those who are beginning their careers and will now win their first spurs. To me the most significant feature of this occasion is that the time has come in America when a group of investigators, more or less closely connected through common teachers, can bring together so large a number of important, original contributions to medical science. Twenty-five years ago this would not have been possible.

That I should have been permitted to participate with others in bringing about this advance is to me a source of much gratification.

"When Dr. Prudden and I first started our small laboratories in New York, he at the College of Physicians and Surgeons, and I at the Bellevue Hospital Medical College, the outlook was not encouraging for a young man to select pathology as a career. The contrast between then and now in this respect is indeed striking. Today, pathology is everywhere recognized as a subject of fundamental importance in medical education, and is represented in our best medical schools by a full professorship. At least a dozen good pathological laboratories, equipped not only for teaching, but also for research, have been founded, many of our best hospitals have estbalished clinical and pathological laboratories, fellowships and assistantships afford opportunity for the thorough training and advancement of those who wish to follow pathology as their career, special workers with suitable preliminary education are attracted to undertake original studies in our pathological laboratories, students are beginning to realize the benefits of a year or more spent in pathological work after their graduation, and as a result of all these activities the contributions to pathology from our American laboratories take rank with those from the best European laboratories. While we realize that we are only at the beginning of better things, and that far more remains to be accomplished than has yet been attained, nevertheless the progress of pathology in America during these twenty-five years has surely been most encouraging. When I look back over this quarter of a century I realize how favored I have been by my opportunties, and here you will permit me to be somewhat personal.

"My interest in pathological anatomy was awakened in my student and hospital days by Delafield and Janeway, who are among the best pathological anatomists whom I have ever known. I received also a strong stimulus toward scientific work from Jacobi, whose seventieth birthday will be celebrated tomorrow night in New York by well-earned honors. I owe more than I can tell you to my teachers in Germany, to Cohnheim, Weigert, von Recklinghausen, and Wagner, and through them to the great master, Rudolph Virchow. Upon my return to this country my association with Dr. Austin Flint, the elder, was to me an inspiration, and in many ways of the greatest advantage.

"While the prospects for earning a livelihood and for advancement in the career of a pathologist may not have seemed encouraging in New York twenty-two years ago, in reality the circumstances were fortunate. About that time there were introduced great improvements in histological technique, which led to a deeper insight into the structure and activities of cells and opened the way for new directions of development. Above all, it was the beginning of the bacteriological era marked by the great discoveries of Koch, of whose earliest work I saw something while studying in Cohnheim's laboratory in Breslau, and whose personal teaching I later enjoyed. To have begun one's work as a teacher of pathology at such a period, and after intercourse with such masters of the science, and to have been permitted to continue it during these years of unparalleled progress, must be considered a circumstance fortunate for the teacher. The time was fully ripe in this country for the introduction of laboratory teaching and investigation in pathology, and is is certain that if one had not appeared to undertake it another would have done so. It was an easy

matter under such circumstances to demonstrate the value of the pathological laboratory in medical education. I have every reason to feel grateful for the encouragement and support accorded the little laboratory at Bellevue and the opportunities there afforded to me. Prudden's laboratory, founded about the same time at the College of Physicians and Surgeons, has developed under his masterly direction into a large and splendidly equipped laboratory, surpassed by none in its influence upon the advancement of pathology in this country.

"I need not speak here of the wider opportunities, so well known to you, which I found in Baltimore; of the liberal policy of the trustees of the Johns Hopkins University and Hospital in the establishment and support of the pathological laboratory; of the advantages derived from the intimate association of the Medical School with this great university and hospital; of the stimulus received from my colleagues, and of the attraction of our high standards of education in drawing to us highly-trained students. Above all, most fortunate have I been in those who have worked with me as pupils and associates, and to these co-workers is due in the first instance whatever of success has attended my efforts as a teacher and student of pathology. I am delighted to see here tonight my old friend and co-worker in the New York laboratory, Dr. Meltzer, and also Dr. Beyer. To have had such a coadjutor in the early organization and conduct of the Baltimore laboratory as Dr. Councilman, such an original investigator as Dr. Mall for the first fellow in pathology, such special workers in the early days of the laboratory as Sternberg, Halsted, Herter, Abbott, Bolton, Nuttall, Booker, Miller, Barkley, Clement, Howard, Russell, Blackstein, Thomas, Williams, Randolph, Gilchrist, and others, all of this I count as the best of good fortune.

"I call to mind on this occasion with affectionate regard many others who have followed these earlier workers, but the list is too long to enumerate. I must, however, give expression of my indebtedness to Dr. Flexner, who since the opening of the Medical School until the end of the last academic year has been my closest associate in the work of teaching and in the supervision of the laboratory. While it has been hard to part with such associates, it is a matter of pardonable pride that so many have been called to important chairs in other institutions—Councilman to Harvard, Abbott, Flexner and Clark to the University of Pennsylvania, Wright to the laboratory of the Massachusetts General Hospital, H. U. Williams to the University of Buffalo, Blumer to the Bender Hygienic Laboratory in Albany, Bolton to the Hoagland Laboratory and subsequently to other institutions, Howard to the Western Reserve University, Nuttall to the University of Cambridge, England, Russell to the University of Wisconsin, and now we are to lose Barker, most scholarly, versatile and inspiring of teachers, and profound in his studies, who has been called to an important position in the University of Chicago. That we shall retain with us young men of great promise is evidenced by such contributions as those of Cullen, Cushing, Young, Bardeen, the MacCallums and Opie in this memorial volume. I rejoice to see in this book in connection with Cushing's the name of our much-loved Livengood, whose career of unusual promise was cut short by an ill-timed fate.

"I should like to be able to speak of the value of the contents of this

volume which you have dedicated to me, but I see it for the first time to-night. A glance through the pages assures me that here are gathered together papers with which any medical teacher in the world would be proud to have his name associated. I may be permitted to call attention to the importance of the contributions from our women students, and it will not, I trust, be invidious if I mention the superb work of Miss Florence Sabin, done under Dr. Mall's and Dr. Barker's direction, and so beautifully illustrated by Mr. Broedel. As I have already said, I see in this volume of studies an index of the great advance during the last quarter of a century in the material conditions surrounding pathological teaching and investigation in this country, brought about especially through the establishment of laboratories. It is also a significant token of the greater things which we may assuredly expect in the future, when America will take her place in the front rank with those countries which contribute most to the progress of the medical and biological sciences. If my name shall ever be mentioned among those who in those earlier days have helped to promote our science in this country I shall owe it above all to you, my pupils, colleagues, and fellow-workers."

Remarks were also made by Dr. Wm. Osler, Dr. Henry M. Hurd, and others.

The contents of the Welch Festschrift are as follows:

1. A Contribution to the Study of the Pathology of Early Human Embryos; Franklin P. Mall.
2. On Urea in Some of Its Physiological and Pathological Relations; C. A. Herter.
3. The Direct Action of Nicotine Upon the Mammalian Heart; Henry G. Beyer.
4. The Effects of Shaking Upon the Red Blood-Cells; S. J. Meltzer.
5. The Blood-Vessels, Angiogenesis, Organogenesis, Reticulum, and Histology of the Adrenal; Joseph Marshall Flint.
6. Specific Degenerations of the Cortical Arteries; Henry J. Berkley.
7. The Regeneration of the Crystalline Lens; Robert L. Randolph.
8. The Histology of Acute Lobar Pneumonia; Joseph H. Pratt.
9. Bilateral Choleastomatous Endotheliomata of the Choroid Plexus; George Blumer.
10. Concerning the New Formation of Elastic Fibers, Especially in the Stroma of Carcinomata; Herbert U. Williams.
11. Cirrhosis of the Liver of the Guinea-Pig Produced by a Bacterium (*Bacillus coli communis*) and Its Products; George H. Weaver.
12. On the Muscular Architecture and Growth of the Ventricles of the Heart; John Bruce MacCullum.
13. Some Observations Upon the Surgical Anatomy of the Gall-Bladder and Ducts: George Emerson Brewer.
14. A Case of Plexiform Neuroma of the Eyelid (*Rankenneurom*); Harry Friedenwald.
15. A Case of Multiple Myeloma; James H. Wright.
16. The Development of the Musculature of the Body Wall in the Pig, Including Its Histogenesis and Its Relations to the Myotomes and to the Skeletal and Nervous Apparatus; Charles Russel Bardeen.

17. A Rare Variety of Adenocarcinoma of the Uterus; Thomas S. Cullen.
18. A Bacteriological and Microscopical Study of Over 300 Vesicular and Pustular Lesions of the Skin, with a Research Upon the Etiology of Acne Vulgaris; T. Caspar Gilchrist.
19. The Frequency and Significance of Infarcts of the Placenta Based Upon the Microscopic Examination of 500 Consecutive Placentae; J. Whitridge Williams.
20. A Contribution to the Knowledge of the Bacillus Aerogenes Capsulatus; W. T. Howard, Jr.
21. On the Intravascular Growth of Certain Endotheliomata; W. G. MacCullum.
22. The Cultivation of Amebae; Caspar O. Miller.
23. The Bacillus Pseudo-Tuberculosis Murium—Its Streptothrix Forms and Pathogenic Action; Dorothy M. Reed.
24. Experimental and Surgical Notes Upon the Bacteriology of the Upper Portion of the Alimentary Canal, with Observations on the Establishment There of an Amicrobic State as a Preliminary to Operative Procedures on the Stomach and Small Intestine; Harvey Cushing and Louis E. Livengood.
25. The Origin, Development and Degeneration of the Blood-Vessels of the Human Ovary; John G. Clark.
26. The Gonococcus: A Report of Successful Cultivations from Cases of Arthritis, Subcutaneous Abscess, Acute and Chronic Cystitis, Pyonephrosis, and Peritonitis; Hugh H. Young.
27. The Histogenesis of the Cellular Elements of the Cerebral Cortex; Stewart Paton.
28. Experimental Pancreatitis; Simon Flexner.
29. Chronic Hypertrophic Gastritis of Syphilitic Origin, Associated with Hyperplastic Stenosis of the Pylorus; John C. Hemmeter and Wm. Royal Stokes.
30. A Case of Adenocarcinoma which Originated in the Submucous Glands of a Trachea-like Formation Found in a Sacral Teratoma; Wm. H. Hudson.
31. On Hydromyelia, in Its Relations to Spina Bifida and Cranioschisis; E. Bates Block.
32. Experimental Disseminated Fat Necrosis; Eugene L. Opie.
33. Multiple Hyperplastic Gastric Nodules Associated with Nodular Gastric Tuberculosis; Claribel Cone.
34. On Serum Substitutes, with Special Reference to Asiatic Cholera; Arthur Blackstein.
35. Endocarditis Due to a Minute Organism, Probably the Bacillus Influenzae; Mabel F. Austin.
36. On the Microscopic Alterations Met with in the Tissues from a Case of Chronic Diffuse Nephritis, Terminating with Symptoms of Landry's Paralysis; Lewellys F. Barker.
37. Model of the Medulla, Pons and Midbrain of a New-Born Babe; Florence R. Sabin.
38. A Contribution to the Surgery of Foreign Bodies; W. S. Halsted.

REMARKS BY DR. WM. OSLER

AT THE

DINNER IN HONOR OF DR. ABRAHAM JACOBI, NEW YORK, MAY 5, 1900.

GIBBON very wisely says that only one person is capable of passing a correct judgment upon the works of an individual, and that is the author himself. Who knows so well the merits of the performance? Who is so interested in them? Fully agreeing, as every author should, with this authoritative statement, I must begin with an apology to Dr. Jacobi for an attempt to usurp his function, but, under the circumstances, he will forgive me.

A first and most surprising impression in a review of our friend's literary work is its very modest amount—only three or four volumes, and some sixty major monographs and essays. Knowing the encyclopedic character of the man, how commendable seems this moderation!

The first publication against his name is the Bonn thesis, 1851, "*Cogitationes de vita rerum naturalium.*" I doubt if Dr. Jacobi could now appreciate the "*cogitationes.*" The thesis, which is modest only in size, has all the dogmatic freshness of a youth of one and twenty. The conclusion of the whole matter is given in a few brief lines at the close—*nil extra naturam, nil extra materiae leges,* and there is a third and concluding phrase which I refrain from quoting. It is interesting to note so early in his career the influence of the great master, Rudolph Virchow, from whose writings several quotations are given. With one I remember to have been caught years ago—"*Die wissenschaften und der Glaube schliessen eich aus.*" Science and Faith have nothing to do with one another, and only worry comes from neglect of that strong statement by Tennyson of their essential divergence:

> "We have but Faith; we cannot know;
> For knowledge is of things we see."

Next, Mr. Chairman, comes the most impressive period of our author's life, *silence* for seven or eight years, during which I can find in indexes and catalogues nothing against either his name or his reputation. It is unique, almost, in the literary history of our profession. Would that this more than Pythagorean period of self-restraint could be emulated today! But think of the desolation to editors if all the graduates of all the schools of all these States thought and worked, but did not write for seven years after leaving college!

To this audience it seems almost superfluous to speak of the professional writings of Dr. Jacobi. Of his larger works the Diphtheria monograph and the treatise on the Therapeutics of Infancy and Childhood have been guides and counsellors to thousands of physicians all over the land. There has not been a better student of diphtheria or a sounder author on the subject than Abraham Jacobi. One of his earliest works, the contri-

butions in connection with Dr. Noeggerrath, is not to be found. Dr. Jacobi said the other night in Washington that it had cost them about $1000 to publish. I understand that it has disappeared absolutely. It is not known whether the authors possess copies, nor it is known how much it cost them to buy up the entire edition, which is the only possible explanation of its rarity.

Of the monographs and special articles I should like to speak at length were there time, particularly of the splendid contributions upon the Intestinal Disorders of Children. The monograph on the Thymus Gland is a model of careful research. You know as well as I of the scholarly and sound contributions in the various systems of medicine which have appeared from time to time. Of the many occasional addresses, that entitled "*Non Nocere*," before the International Congress at Rome, and the appreciative sketch of Virchow, are models of their kind.

I was much interested in one well-worn booklet in the Surgeon-General's Library, the earliest of his contributions in the collection, 1860 or 1861, in which a series of cases is narrated, and in which he gives a statement of how to teach the subject of pediatrics in practical classes in the dispensaries. In this he was, I believe, a pioneer in the United States.

I come now to what may be considered the most important part of his life's work, that relating to infant feeding. It may be said that the safety of a nation depends upon the care of its infants, and no one in this country has done so much for their bodily welfare as Dr. Jacobi. Had they any other language than a cry countless thousands of colic-stricken babes and sucklings would ordain great praise to him. For more than thirty years we find the problem engaging his closest attention, and he has never tired of urging proper methods upon the profession and the public—methods which have always been characterized by his strong, clear sense, and here, I hope, you will pardon a digression.

There is no single question before this nation today of greater importance than how to return to natural methods in the nurture of infants. The neglect is an old story in Anglo-Saxondom. St. Augustine, so Bede tells us, wrote to Pope Gregory complaining that the question of infant feeding was worrying him not a little! I understand that a systematic effort is to be made to supply every child born in this land its rightful sustenance for one year at least. Under the auspices of the Pediatric Society and the Woman's Christian Temperance Union, a *Woman's Infants' Suckling Union* is to be established, which will strive to make it a criminal offense against the State to bottle-feed any baby, and which will provide in large and well-equipped sucklingries ample sustenance when a mother from any cause is unable to do her duty. Dr. Rotch tells me that the action on the part of the Pediatric Society has been influenced by an exhaustive collective investigation which has been made on the future of bottle-fed babies, in which it is clearly shown that intellectual obliquity, moral perverseness and special crankiness of all kinds result directly from the early warp given to the mind of the child by the gross and unworthy deception to which it is subjected—a deception which extends through many months of the most plastic period of its life. According to these researches you

can tell a bottle-fed man at a glance, or rather at a touch. *Feel the tip of his nose.* In all sucklings the physical effects of breast pressure on the nose are not alone evidenced in the manner set forth so graphically by Mr. Shandy, but in addition the two cartilages are kept separate and do not join; whereas in bottle-fed babies in whom there is no pressure on the tip of the nose the cartilages rapidly unite, and in the adult present to the finger a single sharp outline, entirely different from the split bifid condition in the breast-fed child. The collective investigations demonstrate that all silver democrats, many populists, and the cranks of all descriptions have been bottle-fed, and show the characteristic nose-tip. Utopian as this scheme may appear, and directly suggested, of course, by Plato, who can question the enormous benefit which would follow the substitution of sucklingries for Walker Gordon laboratories and other devices!

In looking over Dr. Jacobi's books and papers one gets the impression of an honesty of purpose and a sincerity in them all. There is no clap-trap, no gallery play, but a faithful administration of an intellectual trust, and, what is more, the professional spirit is reflected in them always on the nobler side. There is double meaning in the well-known lines:

"Heard melodies are sweet,
But those unheard are sweetest,"

and let us hope that whatever we may have from his pen in the future will even excel his past performances. A volume of the poems, "*Songs in Silence*," written *in der Stille* of his prison-house, would be most acceptable, or a novel in three volumes, or, better than either, his "Jugenderrinnerungen," which he really should leave us as an evening legacy.

Mr. Chairman, this magnificent demonstration is a tribute not less to Dr. Jacobi's personal worth than to the uniform and consistent character of his professional career. The things which *should* do not always accompany old age. The honor, love, obedience, troops of friends are not for all of us as the shadows lengthen. Too many, unfortunately, find themselves at seventy nursing a dwindling faculty of joy amid an alien generation. Fed on other intellectual food, trained by other rules than those in vogue, they are too often, as Matthew Arnold describes Empedocles, "in ceaseless opposition." Against this interstitial decay which insidiously, with no pace perceived, steals over us, there is but one antiseptic, one protection—the cultivation and retention of a sense of professional responsibility. Happiness at threescore years and ten is for the man who has learned to adjust his mental processes to the changing conditions of the times. In all of us senility begins at forty—forty sharp—sometimes earlier. To obviate the inevitable tendency—a tendency which ends in intellectual staleness as surely as in bodily weakness—a man must not live in his own generation; he must keep fresh by contact with fresh young minds, and ever retain a keen receptiveness to the ideas of those who follow him. Our dear friend has been able to do this because he was one

* * * "whose even-balanced soul
Business could not make dull nor passion wild,
Who saw life steadily and saw it whole."

Book Reviews.

A Manual of Venereal Diseases. By James R. Hayden. New York and Philadelphia: Lea Bros. & Co.

This little volume of 300 pages is the second edition of the work, and is divided into three parts—gonorrhea, chancroid, and syphilis.

As a clinical work it is in many ways admirable, but an apparent skepticism of modern bacteriological creeds, and great laxity in aseptic technique, detract very greatly from its value. For example, the following are rather astounding at this day:

"In regard to the etiology of urinary fever, positive statements cannot be made * * *; in the severer cases we find the bacterium coli communis * * *; its origin is as yet uncertain, the theory being that it comes either from the tissues, the urine, or both."

"In the great majority of cases demanding urethral examination the mucous membrane is already secreting pus, and there is therefore no reason that our instruments should be absolutely sterile."

"For ordinary cases, washing sounds with soap and water, and drying on clean absorbent gauze is all that is really necessary."

We would suggest that too much ado is made over suprapubic aspiration of the bladder, it hardly being necessary to inject cocaine and make an incision through the skin with a scalpel before inserting the needle. As a rule, patients object to aspiration much less than to difficult catheterizations, and by its use the danger of infection from without, which is considerable in these cases, is excluded.

We are disappointed in not finding a full discussion of urethroscopic treatment. The subject is dismissed with a few words, and no mention is made of the valuable method of treating glandular urethritis by electrolysis.

The author's objections to urethral irrigations, and his fear of "the injurious effect of overcoming the delicate musculature which guards the deep urethra and bladder," while clothed in beautiful language, strongly suggests that the author has never tried the method.

The treatise on syphilis is comprehensive, and thorough. H. H. Y.

Crockett's Gynecology. A Pocket Text-Book of Diseases of Women. By Montgomery A. Crockett, A.B., M.D., Adjunct Professor of Obstetrics and Clinical Gynecology, Medical Department of the University of Buffalo, N. Y. In one handsome 12mo. volume of 368 pages, with 107 illustrations. Cloth, $1.50 net; flexible red leather, $2 net. Philadelphia and New York: Lea Bros. & Co. 1900.

Considering the brevity of this volume, on one hand, and the scope of the subject, on the other, the author is to be congratulated upon having condensed so much valuable material into so small a compass. The book will have its function among that class of readers who want to get at the salient points of the science, but have no time to read larger works. This work is to be commended in that it condemns the old-time "office gynecology,"

i. e., intrauterine applications, etc. One fair criticism upon the book is that while the employment of the microscope is advised in the differential diagnosis of certain affections, there are no clear instructions as to how such a diagnosis is to be made. G. W. D.

PROGRESSIVE MEDICINE. Vol. I, 1900. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 404 pages, 36 engravings and a colored plate. Issued quarterly. Price $10 per year. Philadelphia and New York: Lea Bros. & Co.

The first 120 pages of the new volume are occupied by Dr. J. C. Da Costa, who gives an excellent review of recent advances in the surgery of the head, neck and chest. The most striking parts of this contribution relate to the surgery of the mammary gland and of the skull and brain. These parts of Da Costa's article, as well as that relating to the operations upon the face, are well illustrated.

Dr. Fred A. Packard contributes an article on the infectious diseases, including acute articular rheumatism, diphtheria, typhoid fever, malaria, pneumonia, influenza, cerebro-spinal fever, scarlet fever and measles. The section on diphtheria is chiefly devoted to the treatment, especial attention being given to the influence of antitoxin upon the complications and sequelae of diphtheria.

The pages devoted to typhoid fever contain references to most of the work of definite practical value that has been done in this hard-worked field.

The only illustration in Packard's article is a good color plate of Koplik's sign in measles.

The article of Dr. Alexander D. Blackader on diseases of children is as practical as his excellent contribution in 1899.

Ludwig Hektoen contributes the article on pathology, which in the portion devoted to tumors is very well illustrated.

Laryngology and Rhinology are considered by A. Logan Turner, and the concluding chapter of the volume is by Robert L. Randolph upon Otology. The book, as a whole, is quite up to the excellent mark made by Progressive Medicine in 1899.

TWENTIETH CENTURY PRACTICE OF MEDICINE. Vol. XIX. Malaria and Micro-organisms. New York: William Wood & Co. 1900.

The nineteenth volume of this most valuable work is of especial interest, coming as it does at a time when the whole subject of malaria is being so rapidly elucidated by the Italian and English observers.

It is singularly appropriate that the article upon this subject should have been entrusted to two of the great Italian investigators in this field, Marchiafava and Bignami, and in the 500 pages they devote to it the whole subject of malaria, from the points of view of etiology, diagnosis, prognosis, therapy, complications and prophylaxis, is treated in such a masterly and complete manner that the only feeling one has after reading the

article is one of complete satisfaction at such a piece of valuable and thorough work.

Flexner devotes 200 pages to a discussion of Bacteria in an able manner, and the volume closes with a short but well-written article by Opie on Protozoa. Taken altogether the volume is one of the most interesting and valuable of the series, and, comprising, as it does, three articles which are in reality monographs, possesses a marked scientific value.

B.

International Clinics: A Quarterly of Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, etc. Edited by Henry W. Cattell, A.M., M.D.; John Ashurst, Jr., M.D., LL.D.; Charles H. Reed, M.D., and James T. Whittaker, M.D., with Regular Correspondents in Montreal, London, Paris, Leipsic, and Vienna. Vol. I. Tenth series, 1900. Philadelphia: J. B. Lippincott Company.

The tenth series of "International Clinics" comes out under entirely new editorial management, and while the general appearance of the book is unchanged, the character of the articles has altered chiefly in the direction of greater practical utility. This is a decided improvement.

The first fifty pages of the book are devoted to Disease in the Philippines and Camp Sanitation. Of especial interest in this part of the book is Victor Vaughan's article on "Typhoid Fever Among the Troops at Chickamauga."

Under the head of Therapeutics are four articles, of which the most interesting at this time is perhaps that on "Cacodylic Acid and Its Derivatives," by Armand Gautier. The therapeutic employment of arsenic has been made both more agreeable and less uncertain since this agent has been introduced, and the account of it from the man who first suggested its use as a vehicle for arsenic is of much interest.

In the section devoted to Medicine there are four articles, the first by Geheimrath Brieger on "Lupus Vulgaris; Tuberculin as a Diagnostic Agent; Rheumatism and Rabies;" next an article by O. Lassar of Berlin on "Leprosy," very well illustrated; one by Joseph M. Patton on "Gastric Ulcer and Its Treatment," and finally an article by J. C. Wilson on "The Care of Our Poor Consumptives."

The single article in Neurology is by C. C. Hersman of Pittsburg on "Paresis."

The section on Surgery opens with an excellent and very practical article, well illustrated, on "Operations in Private Houses." There is also an article by Thomas G. Morton, and one by G. Dieulafoy.

Under the head of Pathology Alexander Haig gives an interesting paper on "The Granules Precipitated in the Blood by Chloride of Ammonium." This rapid method of estimating the uric acid in the blood and of observing the effects of medication in certain diseases promises to become of great practical usefulness.

The book concludes with an excellent review of the Progress of Medicine during the year 1899. This review occupies somewhat over 100 pages, and is by Henry W. Cattell and W. J. Blackwood.

MARYLAND MEDICAL JOURNAL.

JOHN S FULTON, M.D., *Editor.*

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BALTIMORE, JUNE, 1900.

THE FUTURE OF THE OPIUM-FED BABY.

THE use of opium in infancy was some years ago the subject of much preaching in medical journals, and authoritative thunders were launched especially against the domestic use of narcotics. The soothing syrups, cordials, and carminatives were particularly condemned as dangerous, and with good reason, since many infants were undoubtedly killed by their indiscriminate or careless use. T. D. Crothers has an interesting article in the *Journal of the American Medical Association* for May 19 upon this subject. To those of us who heard the invectives of the earlier pediatricians his opening sentence seems somewhat Van Winklish. He says "the danger of opium as a remedy in infancy has only recently been recognized." The dangers which he wishes particularly to emphasize are those which involve the nervous integrity of the adult. After considering the effects of opium in general upon psychic and organic functions, he says: "The changes following long-continued doses become permanent. The symptoms of dullness and stupor continue in lessened vigor and in degrees of imbecility and mental perversion in later life. The freedom from pain, and forced sleep, with apparent steadiness of nerve force, react in increased irritation and instability, with greater sensitiveness to all surroundings." He gives many illustrations of persons in whom the late effects of opium taken in infancy are manifested in one or the other of these two ways.

The first is that of the son of healthy parents, who alone in a family of four children is dull, passionate, and given to excesses, and who had a dose of opium daily during his second year. For this boy a drug addiction or a dementia is prophesied.

In another healthy family a son became an impulsive inebriate soon after puberty. During infancy he was treated with morphia on account of intestinal trouble, and the medication was continued daily for a year, and at intervals during his boyhood.

In the family of a missionary the oldest and the youngest child are in all respects healthy, as were the parents. The second child became an accomplished woman of apparently strong character, though nervous and at times hysterical, but at twenty-four suddenly took to both opium and alcohol, and had symptoms of insanity. Her younger brother became a drinker and gambler, then a clergyman, later a physician, next a speculator, and now, under thirty, is an opium *habitué* and an invalid.

These two children were nursed by a Hindoo woman who was discovered to be an opium-taker, and this was held to explain the dullness of

her two nurslings. Crothers says that about 10 per cent. of his cases of opium and alcohol inebriety give histories of drugging in infancy. In one case of inebriety at twenty-one he traces the perversion to a single poisoning with opium lozenges, which nearly proved fatal at two years of age. The other two children in this family were healthy.

Another healthy couple, both total abstainers, had five children, all of whom at about twenty took to either alcohol or opium, or both. They had been brought through the ills of infancy without the aid of a physician, the mother treating them with opium, sometimes for months together. Three of these five are decidedly feeble minded.

The author believes that these dangers are invited not only by domestic medication, but by the thoughtless prescriptions of routine physicians.

Only a great multitude of careful observations would suffice to establish an etiological relation between the administration of narcotics in infancy and these phenomena in later life. It is hardly possible that many physicians countenance, much less advise, the long-continued use of opium in infancy, but it is quite certain that very many children of overworked mothers among the poorer classes, and not a few neglected children of well-to-do parents, receive opium in considerable amounts throughout the nursery period, and the suggestion that permanent and irreparable injury may result from this dosing is quite reasonable, if not entirely new.

THE MEDICAL-PRACTICE LAW OF OHIO.

The legislature of Ohio passed on April 14, 1900, a law regulating the practice of medicine which contains some very good provisions. The fight in the assembly was very hot, and the influence of the profession was not strongly felt until late in the history of the bill. Of course, the measure was not enacted without compromise. The Osteopaths had an influential friend in Senator John B. Foraker, and presented a bill of their own, which came near passing. It was therefore necessary to give the Osteopaths some recognition in the bill which the profession favored, so that the new law permits Osteopaths to be registered as practitioners upon the presentation of a diploma from some legally incorporated school of Osteopathy, requiring four courses of study of not less than five months in each of four separate years, and upon the further condition of passing a State examination in anatomy, chemistry, physiology and physical diagnosis. It is also provided that Osteopaths "shall not be granted the privilege of administering drugs or performing major operative surgery." These restrictions may somewhat diminish the number of practicing Osteopathic quacks, but will probably not prove a practical check upon the activities of those who qualify under the terms of the law.

A practitioner who is qualified to attend a case of diphtheria could certainly never be punished for administering antitoxin, since the qualification to attend includes the right and even the obligation to use the best means to save life. There are, broadly speaking, two ways of saving a drowning man, the best undoubtedly being to take the man out of the water. It might make an appreciable difference to the man in the water if the man on the shore were qualified only to remove the water.

A compromise with the matriculated medical students was also necessary. They were well organized, and did not disdain an alliance with the irregulars, so that their demands had to be met. All students now matriculated at any of the schools of the State are to be admitted to practice upon the registration of their diplomas. This was probably not a costly concession.

Perhaps the most important provision of the new law is that which requires each candidate for license to submit evidence of adequate preliminary training. He must have a degree of A.B., or its equivalent, from some reputable school, or a diploma from a normal or high school giving a four-years' course, or must have passed the freshman's examination for some college, or must pass an examination by the State Licensing Board. This is a very good feature of the law, though the examination seems strangely out of place at the *end* of the course in medicine. No doubt these requirements as to preliminary training may be manipulated by a State board as adroitly as the entrance examinations customarily are by many medical schools, but if they are enforced, with a tightening grip from year to year, steady improvement may be expected in the quality of the men seeking entrance to the profession.

The practice of medicine is defined in the act at some length and in considerable detail.

The administration of the law is placed in the hands of a single board composed of seven men, of whom three are regular physicians. In this respect the law of Ohio is thought by some to be superior to the laws prevailing in other States, but it seems doubtful if the one-board idea has been realized in its best or even in a good form.

DEFENSIVE ARMOR AGAINST HYPNOTISM.

A MAN, who, in order to be free to marry again, killed his own wife and the husband of the other woman, has recently been convicted of murder in a Nebraska court. The principal witness for the State was the widow of one of his victims, the woman whom he wished to marry. While testifying she was permitted to wear a long cloak and dark eyeglasses for the purpose of avoiding the influence of the prisoner's gaze. The witness was permitted by the court to employ these defensive devices. The case has been appealed on the ground that the prisoner was unlawfully deprived of his constitutional right to confront his accusers, and that the spectacles enabled the witness to swear falsely. To this plea the commonwealth's attorney replies that the invasion of constitutional rights was merely technical, and was necessary because the witness would, if obliged to face the accused, have been unable to testify truly, being wholly under his hypnotic control. Three physicians allege that the accused did exercise such a degree of hypnotic influence over her. It seems to us that this particular sort of influence is ill-described as hypnotic. It seems to have been an excessively vigilant terror, and would have been calmed quite as effectively if the armor of obscuration had been worn by the prisoner.

Medical Items.

Dr. Otto G. Ramsay has been called to the chair of gynecology at Yale Medical School.

Eighty-three candidates for license to practice medicine presented themselves at the State examination May 16 to 20.

Dr. S. P. Latane has been appointed superintendent of University Hospital. Dr. St. Clair Spruill has resigned to engage in private practice.

The Presbyterian Hospital, New York, will receive $20,000, and the New York Eye and Ear Infirmary $5000, under the will of Robert Schell.

Dr. J. C. Clarke, superintendent of Springfield Hospital for the Insane, has been elected professor of psychiatry at the Woman's Medical College, vice Dr. Edward M. Brush, who has resigned.

According to the *Medical Record* a French-Canadian living in Rhode Island has been the father of forty-one children. He has had three wives. The second wife presented him with triplets on three occasions.

The Vermont State Board of Health held the second session of its School of Instruction for Health Officers at Burlington on May 22, 23 and 24. Similar schools of instruction are now held yearly in several States.

Dr. Landon Carter Gray died in New York on May 8, aged fifty years. He was professor of neurology in the Polyclinic, and was the author of many essays, and one systematic text-book on nervous and mental diseases.

Dr. Isaac E. Atkinson has resigned the chair of therapeutics in the University of Maryland, having found that his private work demanded all of his time. No successor has yet been chosen. Dr. Atkinson has been connected with the university as a teacher for more than twenty years.

It is said that vaccination has recently been done in a village of South Carolina in a forcible and summary manner, the governor having issued instructions to magistrates to order the arrest of those who refused vaccination. A number of persons were arrested, taken to jail and vaccinated.

The health department of Syracuse recently passed an order requiring dairymen to show certificates of tuberculin test of all their cattle as a necessary condition of license to sell milk in the city. The dairymen rebelled, and made a compact not to deliver any milk in the city until the order is rescinded.

One of our contemporaries does not apparently know the great medical men of the day. He prints an editorial about the inconstancy of cobblers, and the cobbler whom he roasts for unfaithfulness to his last is Dr. Gallinger, United States senator from New Hampshire. It should be generally known that there is, or was, a doctor under the senator's toga.

On Wednesday evening, May 23, the Book and Journal Club entertained the members of the Medical and Chirurgical Faculty of Maryland at a "smoker" held in the hall of the Faculty. Dr. Friedenwald gave an account of the work of the club during the past year. Dr. Osler gave an account of his visit to Pepys' Library at Cambridge, England, in the summer of 1899.

Some Christian Scientists in New York asked to be allowed to treat "Old Tom," a sick and wicked elephant in the Central Park Zoo. When told that "Old Tom" would give them massage if they should enter his cage, the scientistics replied, with great presence of mind, that they would give "Old Tom" absent treatment. They must have done so, for the elephant is better.

A strange homicide was recently perpetrated in Philadelphia by some young men, who captured a boy and introduced into his rectum a rubber tube connected with a tank of compressed air. The inflation soon reduced the boy to an alarming condition, and his assailants fled. The boy was removed to a hospital, where an operation was proposed, but was refused by the mother. The boy died.

Among the recent changes in local boards of health are the following: Dr. O. H. W. Ragan succeeds Dr. J. McPherson Scott in Washington county; Dr. Jas. W. Urie succeeds Dr. W. Frank Hines in Kent county; Dr. T. Ross Payne succeeds Dr. H. Burton Stevenson in Baltimore county; Dr. Chas. F. Davidson succeeds Dr. J. C. Bordley in Queen Anne county; Dr. H. O. Walter succeeds Dr. J. Worthington in Anne Arundel county.

Mary Gregory, a Salvation Army lieutenant, suffering with appendicitis, is said to have had a temperature reaching 112° F. daily for fifty-five days. Once her temperature went to 119°, so the thermometer said, and four physicians believed it. Dr. Frank Sampson of Penn Yan, N. Y., has charge of the case. A simple test of the genuineness of the thermometer reading would be to use a thermometer whose tube length will admit of expansion only to one degree or so short of such a temperature as the case apparently registers. If any muscular trick is used in making the record, probably the best that the patient could do would be to send the index to the end of the tube. But if the temperature of the mercury should be raised to a point beyond the expansive capacity of the tube, a broken thermometer would almost certainly result.

On Thursday, May 17, Mr. Henry Waters presented to the city of Baltimore the keys and deed to the public bathhouse and laundry at 131 and 133 South High street. Mayor Hayes being confined to his home, the gift was accepted by Mr. Skipwith Wilmer, president of the second branch of the city council. This is the first of the two similar gifts which Mr. Waters means to confer upon the city. The bathhouse is situated in the most crowded and squalid quarter of the old city. It is a modest but attractive structure. The baths are situated upon the main floor. The compartments are constructed of green slate, and consist of an outer dressing-room with a seat, and an inner bathroom provided with the Gegenstrom shower. There are hot and cold water pipes, and the temperature is controlled by the bather. The cold-water spigot when closed locks the hot-water faucet, so that it is impossible to turn on hot water first. There is but one tub in the men's division. The women's division is similar in general plan and construction. There are two entrances, both commanded by one office, where tickets and towels are handed out. In the front part of the basement is a public laundry and drying-room for the use of housewives and for the laundering of the establishment. The furnace and boiler are in the rear basement. This is the first public bathhouse to be erected in Baltimore, and its history will be watched with interest. The baths are not free. A nominal fee will be charged for the use of each bath or laundry tub. There has long been a public bath commission on the municipal roster, but they had custody only of the free outdoor baths at Gwynn's Falls and at Spring Garden. The mayor has appointed upon the public baths commission Mr. Eugene Levering, Mr. George Corner, Mr. W. H. Morris, Rev. T. M. Beadenkof, Dr. Mary Sherwood, Dr. Joseph Gichner, and Dr. John S. Fulton.

The Maryland Public Health Association held its third annual meeting at the hall of the Faculty on Tuesday and Wednesday, May 29 and 30. The first session on Tuesday afternoon was devoted chiefly to the milk supply, and a very interesting discussion took place. Below is a copy of the programme, with a list of the officers of the association: Tuesday afternoon, May 29—The Production and Preparation of Milk for Infants' Feeding, Dr. W. T. Booker, Baltimore; The Results of Some Chemical and Bacteriological Examinations of Milk, Dr. W. R. Stokes, E. M. White and Dr. G. Lehman, Baltimore; Food Supply and the Conservation of Nitrogen, Dr. Augustus Stabler, Brighton; Popular and Scientific Dietetic Errors, Dr. J. C. Hemmeter, Baltimore. Tuesday evening—The Bubonic Plague, an illustrated lecture, Dr. L. F. Barker, Baltimore. Wednesday afternoon, May 30—Obstacles to Public Health Legislation, Dr. C. Birnie, Taneytown; Some Suggestions in Relation to Health Laws, Dr. C. Farquhar, Olney; The Relations Between Hygiene and Physiology, Dr. S. J. Fort, Ellicott City; Some of the Communicable Diseases of the Skin, Dr. T. C. Gilchrist, Baltimore; Preventive Inoculations Against Typhoid Fever, Dr. J. S. Fulton, Baltimore. Wednesday evening—Malaria and Its Prevention, Dr. W. S. Thayer, Baltimore. Officers of the association—President, Mr. Charles R. Hartshorne, Brighton; vice-presidents, Dr. Howard Bratton, Elkton; Dr. T. M. Chaney, Dunkirk; Mr. John F. Hancock, Baltimore; Miss Eliza Ridgely, Baltimore; Mrs. Daniel Miller, Baltimore; secretaries, Dr. John S. Fulton, Baltimore; Dr. Samuel J. Fort, Ellicott City; treasurer, Dr. L. Gibbons Smart, Roland Park.

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A WINTER IN BADEN-BADEN.

A HEALTH RESORT OF THE FIRST RANK. THE "PEARL OF GERMAN WATERING PLACES." ITS UNIQUE ADVANTAGES.

By Edward M. Schaeffer, M.D.,
Baltimore.

Illustrations by G. SALZER, Photographer.

FOR the past thirty years, mindful of the fame which she had already won in the second century through her hot medicinal springs, Baden has seriously bent every energy to become a leading sanitarium of Europe, with a success which seems worthy of wider recognition in America.

THE LICHTENTHALER ALLEE.

BADEN-BADEN.

Public gambling was suppressed in 1872, and the government straightway erected bathing establishments on a magnificent scale, and developed the wealth of natural resources for which this beautiful Schwarzwald region is so justly noted. It is no exaggeration to say that while the therapeutical equipment of the Grand-Ducal Friedrichsbad (for gentlemen) and of the Augustabad (for ladies) ranks among the finest on the Continent, Baden itself is unique in combining all the charms of rural life with those of a highly cultivated society.

Art has been subservient, not aggressive, to nature, and history and romance lend their interest to almost every neighboring mountain or landscape. Here is a vast park or garden, like a nobleman's estate, cultivated and cared for with exquisite taste, already for guests, and offering a most restful quiet to the weary or afflicted, while, at the same time, every provision is made for the healthful entertainment of mind and body.

EXTENT OF PATRONAGE.

The popularity of Baden is greater now than in the sixties, when it was chiefly known as a pleasure resort. At that time the patronage was about 56,000, of whom 16,000 were French. During the year 1899 the official registry enrolled 73,469 names, apportioned among the various foreign nationalities as follows: America, 2963; France, 3692; Great Britain, 2401; Russia, 1658; Switzerland, 1485; Italy, 273; Norway and Sweden, 171; Africa, 97; Asia, 67; Australia, 6; Mexico, 24; Brazil, 74; Greece, 24; Spain, 75; Turkey, 23, etc. This will indicate the cosmopolitan character of the life in Baden.

During the Easter holidays quite a number of German university professors passed their vacation here, apparently attracted by the unequaled opportunities for agreeable outdoor exercise. Among them was the well-known Dr. Erb of Heidelberg. The local popularity of Baden brings annually from Germany some 50,000 vistors.

A WINTER SEASON.

As at Wiesbaden, there is also a gradually developing winter season, which brought, since November 1, 5000 guests to this watering place.

Wiesbaden is a city of 80,000 inhabitants, with street cars, a royal theater and numerous facilities for gaiety and amusement in bad weather. It attracts many strangers and tourists in search of a moderate winter climate. It is, however, more exposed than Baden, where the shelter of the hills secures a remarkable *absence of wind*. The past winter was an exceptionally rainy and disagreeable one in both places. The proverbial chilly dampness of Germany made itself felt, and yet it was a much milder winter than was experienced in Maryland, for example. The snowfall was insufficient to afford a day's sleighing, but two weeks' skating were enjoyed on an artificial pond. All winter long the grass remained green, and the roads through the forest afforded excellent walking.

Orchestral concerts were given twice daily in the Conversationshaus by a band of fifty skilled musicians, alternating with lectures, balls and special musical entertainments. Once a week the theater was supplied by the Karlsruhe Company, and various art exhibitions were accessible to the public.

A cure tax of twenty-five cents a day, $5 per month, or $8 a year, admits to the well-equipped reading-rooms, the smoking-room, and the ordinary daily concerts in the elegant Conversationshaus.

Although most of the larger hotels are not opened until the first of April, a winter in Baden (a town of 15,000 inhabitants) is not by any means monotonous for healthseekers or the friends who may accompany them. The Friedrichsbad is open all the year round, being used jointly by gentlemen and ladies during the winter months.

The building is well heated, and one has the great advantage of not being hurried or crowded in taking the baths or other forms of treatment, as may occur during the busy season.

All the professional specialties are well represented among the thirty-five local physicians, some of whom have excellent private sanatoriums in connection with their practice. Among the latter may be mentioned Sanatorium Quisisana, a model hydro-therapeutic institution in every respect, with Drs. Julius and Heinrich Baumgärtner in charge of surgical and gynecological cases, and Drs. Arnold Obkircher and C. Becker for nervous diseases and general affections. English is spoken by the lady superintendent and three of the medical staff.

The Sanatorium Drs. Frey-Gilbert, named after the physicians in charge (Dr. Gilbert being an Englishman by birth), is attractively situated, with spacious grounds and facilities for all kinds of baths, massage, electricity, etc. Through the courtesy of Dr. A. Frey I was recently shown the working of the hot-air douche of his invention, an apparatus which permits of the application of hot air to the skin in the form of a current.

DR. FREY'S HOT-AIR DOUCHE.

This consists of a neat cabinet 90 cm. high by 70 cm. wide, containing a turbine bellows for producing the current of air, and heating plates, both worked by electricity. The apparatus supplies out of one tube air of the ordinary room temperature, and from another, to which a thermometer is attached, air heated up to a temperature of 200° C. The pressure of the air current is perceptible at the distance of a yard. Various mouthpieces determine whether the current is "thick, thin or fan-shaped." The degree of heat (and also of cold) is under thorough control by a rheostat, as likewise the force of air current. Evident advantages over box or cylinder-shaped devices are stated as follows: (1) Application without the slightest inconvenience or discomfort to the patient to any part of the body, even the eye; (2) Thorough control of current as above expressed; (3) The physician can at any time

control by sight and feeling the effects of the heat. Massage can be combined with the hot-air douche.

Dr. Frey is using this treatment with success on gouty joints, in chronic rheumatism, sciatica, trigeminal and intercostal neuralgias, lumbago, angina pectoris, neurasthenia, etc. Descriptive articles have appeared from Dr. Frey in the *Deuts. Medecin. Wochenschrift*, 1900, No. 5, "Massage Under the Hot-Air Douche;" in *Zeitschrift für diätetische und physikalische Therapie*, 1899-1900, Band 3, Heft VIII, "The Hot-Air Douche and Its Significance in

THE CONVERSATIONSHAUS.

Aerotherapy;" also by Dr. Gilbert in *London Quarterly Medical Journal*, February, 1900.

THE BADEN WATERS.

These belong to the order of the "Alkaline Common Salt Thermal Springs," and contain an unusual quantity of lithium and arsenic. "In one liter of water there is not less than 54 milligrammes of lithium chloride and 0.264 milligramme of arsenic."

Their taste is agreeable, slightly saltish, with a temperature of about 150° F. The quantity of water flowing from the Schlossburg daily is 231,000 gallons. "The most characteristic and important properties of the water are the high temperature, the absence of carbonic acid gas, the small quantity of salt, and the presence of arsenic and lithium. It is therefore one of the mildest and most easily-digested of the thermal waters, and hence most suit-

able for delicate and sensitive constitutions and for patients whose digestive organs are weak.

The celebrated waters of the Kochbrunnen Spring at Wiesbaden are much more salty, having the flavor of a weak chicken broth. The hot springs of Baden-Baden are used both for drinking and bathing purposes. A beautiful *Trinkhalle*, ninety-six yards in length, with a colonnade of sixteen Corinthian columns in front, is much frequented in the early morning, when the band plays and the waters are drunk. The diseases for which they are recommended are those associated with the uric-acid diathesis, gouty, rheumatic and scrofulous affections, chronic catarrh of the respiratory and gastro-intestinal tracts, anemia, general debility, etc. Adjoining the Trinkhalle is a little building in Swiss style, where in the morning and afternoon a herd of fine Jerseys and Alderneys furnish milk "warm from the cow." Goats' milk, kefir, whey and sterilized milk are also on sale. These cattle are medically inspected, everything is scrupulously neat and sanitary about the establishment, and the milk goes directly from the cow into the glass mug selected, and down the purchaser's throat. Six cents of our money pays for a pint of the lacteal fluid.

MUNICIPAL VALUE OF STRANGERS.

A friend asked one of the public porters how the inhabitants of Baden made their living. "Off the strangers," was his reply, and I can only hope that the process is mutually satisfactory and profitable.

To live here is to find your comfort and welfare anticipated and provided for in every way. This is true not only of the city proper, but of the adjoining country for miles around.

Anywhere you may go in the fifty or more different excursions to points of interest you have evidently been expected. Cafés, restaurants, seats, benches, etc., meet you at every turn. The roads are perfect, the paths and walks penetrating the heights and depths of mountain and forest in excellent order at all seasons of the year. Prices are moderate and the refreshment and service good.

Mountain springs furnish the town with its pure water supply, and there is a drainage system and a factory for the incineration of the city waste.

The streets are macadamized, footpaths cemented, and, in short, the business of "living" with mutual satisfaction "off strangers" reduced to a fine art. It is my fervent recommendation that more of our American health resorts may follow suit along such admirable lines. It pays to make a town attractive to strangers.

THE FRIEDRICHSBAD.

This bath and the Augustabad are built on the same spot as that on which the Emperor Hadrian, about 120 A. D., erected the first baths. One of the pleasantest features of this institution is the "Wildbath" for one or more persons. The hot water is conducted to large pools in marble basins. You recline on a layer of fine sand and bathe quietly for twenty minutes in water constantly renew-

ing itself, and hence unvarying in temperature. Then a cool spray and rub down with hot towels, followed by a rest on a couch for half an hour, wrapped in a snug blanket. Every form of bath can be taken, privately if desired, for there are innumerable departments on the three floors of the building. In both the Friedrichsbad and Augustabad are to be found spacious, well-ventilated halls fitted up for the Swedish system of gymnastics on Dr. Zander's apparatus.

Each building contains sixty-four different pieces of apparatus, not counting duplicates of those most used, worked by steam, and handling a patient with a high degree of automatic intelligence.

FREDERICHSBAD AND AUGUSTABAD.

Exercise is a luxury under such conditions, and during several of the winter months I availed myself regularly of their gentle ministrations.

ZANDER SYSTEM.

It may be well to state that the exercises consist of active, passive and mechanical movements for the arms, chest, trunk, legs, fingers, feet, etc., with mechanical massage, vibrations, horseback riding ("broncho-busting" if desired), joint-kneading, and a "roller-bromide" up and down the spine as a sedative finale.

There is no other establishment in Germany that can be compared with it, and great stress is justly placed on the association of this admirable "Heil" system with drinking the waters and using the baths. It is especially adapted to cases of excessive corpulence, certain forms of heart disease, various neuralgies and neu-

roses, and for nervous debility. A charge of $7.50 is made for thirty tickets, with a reduction of one-half for each subsequent series. The courtesy of the entire building is extended without charge to visiting physicians.

As an evidence that present patrons of Baden come principally for the treatment, the record of a total of 154,116 curative baths in the various establishments of Baden during the past year may be cited.

A handsome Inhalatorium is also a part of the therapeutic resources.

Baden enjoys a very central location in Europe, and in summer a through car from Paris makes the trip in seven hours. The journey from Rotterdam here, along the Rhine, can be comfortably made in a little over thirteen hours.

THE CONTRITION OF A CONVERTED ANTIVACCINATIONIST

British Medical Journal.

"71 WALLER STREET, HULL, *February* 28, 1900.

"Dear Sir—I was an antivaccinator before that dreadful disease, smallpox, set its foot into my home. First it attacked my middle daughter, Frances Emily, and when I called the doctor in to attend, his first words were that this is an unvaccinated case of smallpox, and he said this child is unvaccinated, and this is what you are reaping. Well, sir, that doctor had never seen that child before. From then I began to alter my opinion as regards vaccination. To tell the truth, my wife, myself and oldest daughter, Annie, got vaccinated; my son, Willie, was ill with bronchitis, and the doctor would not do him. My eldest daughter, Annie, would not take, but she had been done when an infant, and was under ten years of age. My wife and myself took the vaccination, and at the same time we had the smallpox on us. Our daughter was taken from us on December 6, and died on December 12, and on December 16 my wife, myself and my son were taken to the hospital, and on the 20th my son died. So you will see that *both of my children that were unvaccinated took the smallpox and died.* My wife and myself were vaccinated when infants, and revaccinated, and to which I owe my life. In regard to the unvaccinated cases, they are a cruel sight to see, and ought to be a lesson to all honest-minded people that have seen them suffer. My wife and myself would have had our children vaccinated if it had cost us twenty pounds, but, sorry to say, it cost us our two dear children. *We are as strong now for vaccination as we were against it.* Seeing what we have seen in the hospital will open one's eyes. I can say this for revaccination, that it is a very stimulating thing for smallpox. It is one of the best safeguards that the public can take. Yours truly (signed), WM. JAS. TAYLOR, 71 Waller street, Holderness Road, Hull. P. S.—You can publish this letter for public information on condition that you send me a copy of the paper. From one that has had to pay for his foolishness."

It is a pity that so terribly severe a lesson has been needed, but experience is a hard schoolmaster. Every parent should take to heart this object-lesson, providing as it does an example of the way in which smallpox differentiates between the vaccinated and the unvaccinated in the same household.

THE INDICATIONS FOR THE EMPLOYMENT OF CESAREAN SECTION, SYMPHYSEOTOMY, AND CRANIOTOMY IN CONTRACTED PELVIS.

By J. Whitridge Williams, M.D.,

Professor of Obstetrics, Johns Hopkins University, and Obstetrician in Chief to the Johns Hopkins Hospital.

READ BEFORE THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, APRIL 25, 1900.

During the past two years a considerable number of articles have appeared upon the Cesarean section and symphyseotomy question, which have placed the former operation upon much firmer ground than it previously occupied, by showing that its mortality is comparatively slight, and that it is followed by better results than symphyseotomy.

During this period articles have appeared from the clinics of Leopold, Zweifel and Gustav Braun, giving the results of a large number of Cesarean sections performed by them.

Leopold reports 100 consecutive Cesarean sections with ten maternal deaths, a gross mortality of 10 per cent.; but a number of the cases were profoundly infected at the time of their admission to the hospital, so that their deaths cannot be attributed to the operation itself. When corrected from this point of view, his results show a maternal mortality of only 5 per cent.

Zweifel reports fifty successive Cesarean sections without a single maternal death, while Gustav Braun reports seventy-four Cesarean sections with six deaths, a gross maternal mortality of 8.1 per cent., which, when corrected by deducting the cases which were markedly infected at the time of operation, is reduced to 4.22 per cent. Thus we find that three German operators have performed 222 Cesarean sections with sixteen deaths, a gross mortality of 7.2 and a corrected mortality of considerably less than 4. per cent.

Braun then tabulates his own cases, and adds to them the operations performed by Chrobak, Leopold, Olshausen, Schauta and Zweifel, obtaining a total of 278 conservative Cesarean sections with a gross mortality of 7.5 and a corrected mortality of 4.8 per cent., and eighty-seven Porro Cesarean sections with a gross mortality of 10.3 per cent. and a corrected mortality of 2.5 per cent.

Very favorable results have likewise been reported from France during the past year, Bar reporting ten cases with one death, and Charles of Liege ten consecutive cases with no deaths, and in this country Reynolds of Boston has recently reported fourteen consecutive Cesarean sections without a death.

Without burdening you with further statistics, it is apparent that the mortality of Cesarean section, when performed upon uninfected patients by competent operators, is less than 5 per cent., and should not be greater than the mortality following operations for uncomplicated ovarian cystomata. On the other hand, when performed upon infected cases, even by competent operators, the results are extremely disastrous, as is demonstrated by the earlier American statistics and by the recent work of Doktor of Budapest, who has collected twenty-two cases of Cesarean section performed upon infected women with a mortality of 23.5 per cent.

Turning from the results following Cesarean section to those following symphyseotomy, we find that Pinard has lately reported 100 consecutive cases of symphyseotomy with twelve maternal deaths. He very justly, however, points out that a considerable number of the cases were profoundly infected when operated upon, and that their deaths should not be attributed to the operation, and he consequently reports a corrected mortality of 5 per cent. Last year Bar collected 149 symphyseotomies which had been performed by himself, Pinard, Zweifel and Küstner, with 6.7 per cent. maternal and 9.39 per cent. fetal mortality.

On comparing the results of the two operations it is seen that none of the operators who have performed a large number of Cesarean sections report so great a gross maternal mortality as Pinard, whom, it must be remembered, is the father of symphyseotomy in France, and its most enthusiastic advocate. Moreover, when we compare Bar's statistics, which comprise 149 cases upon whom symphyseotomy was performed by four men, we find that they do not begin to compare with the results following Cesarean section in the hands of equally competent operators. We may, therefore, conclude that the maternal mortality following Cesarean section when performed upon uninfected cases by good operators is, at least, no greater, and probably considerably less, than that following symphyseotomy.

Within the last few months the contrast between the two operations has been still more forcibly emphasized by Abel of Zweifel's clinic, who based his article upon all the cases of Cesarean section and symphyseotomy performed in the clinic between the years 1887 and 1894, each of which he re-examined, if possible, before writing the article. During this period Zweifel or his assistants performed fifty Cesarean sections and twenty-five symphyseotomies without a single maternal death, and Abel, therefore, concluded that there was little, if any, difference in the mortality of the two operations.

He then compared the convalescence after the two operations, and found that the patients recovered far more rapidly and comfortably after Cesarean section than after symphyseotomy, being able to walk, on the average, within three weeks after the former, and not until thirteen weeks after the latter operation. Upon

comparing their ability to work, which is a most important matter in women of the lower classes, he found that the Cesarean section cases were able to do hard work four or five weeks after the operation, but not until four and one-half months after symphyseotomy. At the same time he showed that the ability to walk after symphyseotomy was directly proportionate to the degree of pelvic contraction, the women having the least pelvic deformity being able to walk and work the soonest. This apparently indicates that the sacro-iliac synchondroses are considerably damaged when symphyseotomy is performed upon women presenting marked degrees of pelvic deformity.

At the last meeting of the Obstetrical Society of France, Bar likewise compared the two operations, basing his statements upon his own work and the statistics of others. He had personally performed ten Cesarean sections with one and twenty-two symphyseotomies with no maternal deaths, and in spite of his relatively favorable results after symphyseotomy, stated that the latter operation is inferior to Cesarean section, and predicted that it would soon cease to be performed.

At the same meeting Charles of Liege reported ten cases of Cesarean section with no maternal deaths, and fifteen symphyseotomies with three maternal deaths, and took essentially the same stand as Bar. And in the discussion which followed Budin, Fochier and Maygrier took similar views and agreed with Bar that as the results of Cesarean section became better, symphyseotomy would gradually cease being performed.

Turning from the consideration of the maternal to the fetal mortality following the two operations, we find that Pinard reported that 13 per cent. of the children died after symphyseotomy, and Bar's statistics showed a fetal mortality of 9.39 per cent. When we compare these results with the practical absence of fetal mortality following Cesarean section, it would seem that the advocates of symphyseotomy are hardly justified in claiming that it is the better operation.

At the Johns Hopkins Hospital we have done two symphyseotomies with one death, and three Cesarean sections without a death. This, of course, is too small a number of cases upon which to base a conclusion, but from what I have seen of the work of others, and from the statistics which I have just adduced, it appears to me that there can be no comparison between the two operations, and that Cesarean section is the operation of the future, while symphyseotomy will be done less and less frequently.

Summing up the advantages of Cesarean section as compared with those of symphyseotomy, we find that the maternal mortality is the same or less; that the fetal mortality is practically nil, and that the operation is more satisfactory from a surgical standpoint, for with it we obtain a clearer view of the field of operation, and are not obliged to do a second operation by the vagina, which is frequently accompanied by marked injuries to the soft

parts, and what is still more important, it enables one to complete the operation, no matter how great the disproportion between the size of the child and the pelvis, whereas, in symphyseotomy an incorrect estimate of the disproportion may necessitate the performance of craniotomy, even after the pubis has been cut through. At the same time there is no comparison between the after-treatment of the two operations. In Cesarean section there is a clean abdominal incision, instead of a wound at the pubes, which requires drainage, not to speak of the injuries to the soft parts. There is no necessity for prolonged catheterization, and the patient is spared the long convalescence which symphyseotomy entails.

Turning from the consideration of the results of Cesarean section to the indications for the performance of the operation, we find that they are no longer limited as they were a few years ago. With increased proficiency in pelvimetry we are able to obtain an accurate idea of the size and shape of the pelvis before labor, and with improved technique we are able to safely perform Cesarean section where perforation was previously the operation of choice.

In view of the improved results following the operation, I believe that the old absolute indication for Cesarean section should disappear, and instead of being placed at a conjugata vera of 5 to $5\frac{1}{2}$ cm. (2 to 2.2 inches), should be extended to $6\frac{1}{2}$ cm. (2.6 inches), provided the child is alive. When the pelvis is somewhat larger the indication for the operation is not so clearly marked, and we may state that in pelves having a conjugata vera of 7 cm. (2.8 inches) or more the course of labor will depend upon the size of the child, the consistency of its head and the character of the labor pains, so that one woman with a pelvis of a certain size may have a spontaneous and easy labor, while another woman with a pelvis of the same size may require Cesarean section. In such cases it is advisable to allow the patient to go into labor, and see what nature can do before determining upon the operation.

In a certain number of these cases the head becomes rapidly molded, and as soon as the cervix is dilated, begins to descend, and spontaneous labor occurs. If, on the other hand, the head shows no signs of descending, we should make no attempt at delivery, but perform Cesarean section, provided the child is alive and the woman is in good condition. Of course, under such circumstances it is necessary to remember that every vaginal examination adds to the danger of infection, so that the patient should be examined internally as rarely as possible, and the descent of the head followed by palpation.

When the pelvis is a little larger—say with a conjugata of 8 cm. (3.2 inches) or more—we consider in some cases, unless the child is very large, that a tentative attempt at forceps may be made before deciding upon Cesarean section. Under such circumstances all preparations for Cesarean section should be made, the patient brought to the edge of the table and forceps applied, preferably

over the jugo-parietal diameter of the head, and three or four moderately strong tractions made. If the head follows, they should be continued, and the child delivered in the usual way. If, on the other hand, the head does not follow a few tractions, the forceps should be removed at once, the patient placed in proper position, the hands once more sterilized, and Cesarean section performed. If such a mode of procedure is adopted version will disappear from the treatment of contracted pelves, because if any obstacle is encountered after its performance the child will die before a symphyseotomy can be done, and perforation will become necessary.

There are two classes of cases, concerning whose treatment considerable perplexity may arise, namely, women having normal pelves with very large children, and neglected transverse presentations with a living child. Under some circumstances Cesarean section is doubtless the ideal method of delivery in such cases, but in many others the question is very difficult to answer, especially when one has to deal with neglected transverse presentations; but in view of the probability of previous infection, I believe that the majority of such cases are best treated by decapitation.

Passing from the consideration of the indications for the operation to the method of operating, I believe that the operation which should usually be performed is the typical conservative Cesarean section, while the supravaginal amputation of the uterus or its total removal should be reserved for those cases which are infected at the time of operation, or in which the probability of infection is extremely great, and for the rare cases of osteomalacia.

The question also arises as to whether it is advisable to sterilize the patient at the same time, so as to prevent the possibility of a similar operation in the future. Sterilization may be effected by several methods—supravaginal amputation of the uterus, removal of the ovaries, or excision of the tubes; but I believe that the ovaries should not be removed, for the reason that the retracting uterus may readily exert sufficient traction upon the broad ligaments to cause the ligatures about the pedicle to slip, with resulting hemorrhage and death, not to speak of the discomforts following a premature menopause.

It has been usually taught that sterility may be produced by tying a ligature around each tube in one or two places, but recent experimental work has shown that this is not a sufficient safeguard, as the work of Reis and Frenkel has demonstrated that the ligatures often disappear, and the lumen of the tube becomes patent once more. It was then suggested to excise a portion of the tube between the two ligatures, but Zweifel has recently reported a case in which pregnancy followed this operation, and the experimental work of Frenkel upon rabbits has demonstrated in a certain number of cases that the cut ends of the tube may unite, the ligatures disappear, the lumen be re-established, and the possibility of future pregnancy established. I therefore believe that

the only rational method of preventing the occurrence of pregnancy in the cases under consideration, if one does not wish to do a supravaginal amputation, is to excise the tubes and uterine cornua by wedge-shaped incisions, and close the wounds, just as we do in certain tubal diseases. This can be most readily accomplished by making the uterine incision across the fundus, as recommended by Fritsch, and extending it to the cornua of the uterus, when the tubes may readily be excised.

There must be considerable doubt concerning the propriety of rendering a patient sterile, and it is a responsibility which the average operator may well hesitate to incur. If the patient and her husband are intelligent, the condition of affairs should be explained to them, and the decision left entirely in their hands. But if the patient be ignorant and unable to understand the condition of affairs, the decision must be made by the physician himself, who then has the responsibility thrust upon him of deciding whether he should render his patient sterile, or whether he should leave her in such a condition as to permit the possibility of a subsequent pregnancy.

For my part, I feel that the responsibility is a heavy one, and the only condition under which I should feel justified in rendering a woman sterile after her first pregnancy would be in case of idiots, unless her physical condition demanded a supravaginal amputation. If, however, the patient returned for a second Cesarean section, and it appeared likely that she would require repeated operations during her life, then I think that the propriety of rendering her sterile should be considered, and I should be inclined to accept the responsibility and excise her tubes.

In view of the marked improvement in the mortality following Cesarean section, what position shall we take concerning craniotomy upon the living child? Everyone agrees that craniotomy is indicated whenever we have a dead child in a woman with a contracted pelvis, unless the contraction be so great as to render it a more difficult operation than Cesarean section. On the other hand, craniotomy upon the living child is being done less and less.

The operation is generally believed to be harmless as far as the mother is concerned, though it is necessarily fatal to the child, but Pinard recently stated that the maternal mortality is greater than is usually believed, as he lost 11.5 per cent. of the mothers in the eighty-one destructive operations which he performed. This appears to me to be an excessively high mortality, and is probably due to the fact that a large number of his cases were seriously infected at the time of the operation. My experience is that craniotomy, if properly done in an uninfected woman, is almost devoid of danger. But, nevertheless, I do not believe that it should be done upon living children if the patient is uninfected and in suitable surroundings, and if the obstetrician is a competent operator, or is able to call a competent person to his aid. On the other

hand, if the woman be infected, or lives in a district where skilled operative aid cannot be obtained, it appears to me that craniotomy is still indicated, even though the child is alive, because it must be remembered that the favorable results attending Cesarean section were obtained by competent operators, and not by the average practitioner. Of course, this subject is still further complicated by the ethical question as to whether one has the right to kill an unborn child, and if one is a devout Catholic it can only be answered in one way, and the woman must be subjected to a Cesarean section, no matter what her surroundings or what the ability of her medical attendant.

Certain authorities, notably Pinard, consider that we have no right to sacrifice a living child, no matter what our religious convictions may be, and in a recent article entitled "Du soi-disant feticide therapeutique" he concludes that "the accoucher has not the right, either morally, legally or scientifically, to practice embryotomy upon the living child. To sacrifice the infant in order to save the mother is a legend which should disappear. The control of the life and death of an infant belongs to no one—neither to the father, nor the mother, nor the physician, nor director of a hospital. The right of the infant to live is sacred, and cannot be taken away by any power. The right of choosing the operation to be performed belongs solely to the physician, and the obstetrician should remain a physician in all his acts, that is to say, he should at all times and in all places avoid producing disease and infirmities, and should do his best to preserve the life of those beings who confide themselves to his care, or who are confided to him. This is the profession of my faith."

Pinard believes that symphyseotomy should be done in these cases, but I consider that he has taken an extreme view, and believe that craniotomy upon the living child has a place still among obstetrical operations, but that its performance should be restricted to the greatest possible extent, and that it should only be performed when the dangers to the mother from other operative procedures are so great as to make them practically unjustifiable. The question resolves itself into one of conscience, and can best be solved by the physician asking himself, how would he want his wife treated under the same circumstances? Would he prefer craniotomy upon the living child, or the performance of Cesarean section by an unskilled operator amid unsatisfactory surroundings?

What position shall we assume toward the induction of premature labor upon women with contracted pelves? This operation was extensively employed in times past, and still is by a considerable number of obstetricians. Everyone agrees that the maternal mortality following it is almost insignificant if done under proper aseptic precautions. Thus, Pinard reports 100 cases with a single maternal death, and Charles 100 cases without a death.

To be efficacious the operation should be performed six or eight weeks before the expected date of confinement, at a period

when the child is considerably smaller than at full term, with the result that an imperfectly developed, premature infant is born, whose chances of life are not particularly bright, in spite of all modern appliances for preserving it. Pinard and Charles report a fetal mortality of 33 and 36 per cent., respectively, and if we are operating in the interests of the child it appears to me that this is a very poor showing. And I can only see a difference in degree between performing an operation which we know will result in the death of one-third of the children, and in doing craniotomy, by which all the children perish. If we are operating solely in the interests of the mother induction of labor appears to be a very excellent operation, but, under these circumstances, why not do an abortion at a much earlier period, and save the woman all the weary months of her pregnancy? This was the practice in England 100 years ago, but we have progressed beyond it, and with the present mortality attending Cesarean section I believe that the induction of premature labor is justifiable only in a very small proportion of the cases of marked pelvic deformity.

There is one class of cases, however, which appears to me to offer a distinct field for the operation—that is in multiparous women with normal pelves who have repeatedly given birth to large children which have died during labor—children of eleven and twelve pounds or more. In such cases I believe that the induction of labor six weeks before the expected date of confinement would enable us to save the mother and child, and give us more satisfactory results than Cesarean section, as far as the mother is concerned, and probably nearly as satisfactory results on the part of the child.

What I have said concerning Cesarean section and symphyseotomy applies only to those who feel themselves competent to do major surgical operations, for neither of these operations is one which should be attempted by one who has no surgical experience. The average Cesarean section is comparatively simple, but in a small number of cases the uterus may fail to contract and retract, and the woman may be threatened with death from hemorrhage. Under such circumstances the only method of saving her life is to remove the uterus, and unless the physician feels himself competent to attempt this operation he should not do a Cesarean section, save under the most exceptional circumstances.

The same holds good for symphyseotomy, which is an operation which I should surely not recommend to anyone who is not fairly conversant with surgical procedures. Accordingly, then, while Cesarean section appears to be the operation of the future in cases of obstructed labor in contracted pelves occurring in large cities, where competent aid can be secured, it will be some time before it can be recommended to the average practitioner in outlying parts, for whom I believe craniotomy is the safer operation, and one which he must perform occasionally upon the living child.

Current Literature.

OBSTETRICS AND GYNECOLOGY.

By George W. Dobbin, M.D.,
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SCHAUTA'S FESTSCHRIFT.

In commemoration of the twenty-fifth anniversary of the work of Prof. Friedrich Schauta of Vienna as a teacher, the January number of the *Monatsschrift für Geburtshülfe und Gynäkologie* is made into a Festschrift.

The volume is enlarged to several times its original size, consisting of about 500 pages, and contains a large number of interesting articles upon obstetrical and gynecological subjects written by Schauta's pupils.

The several articles reviewed below are those which seemed to be of greatest general interest:

DIE OVARIOTOMIE AN DER KLINIK SCHAUTA. Oskar Bürger. *Monatsschrift für Geburtshülfe und Gynäkologie*, Bd. XI, Hft. I.

The present report, which is based upon a critical review of the ovariotomies done in Schauta's clinic during the past twelve years (1887 to 1899), cannot fail to be of great value to all who are interested in this operation. During that time there have been 394 operations done in the various clinics of which Schauta has been in charge, and while the author claims nothing new in the deductions he has drawn from his analysis of these cases, yet such an analysis cannot fail to be of greatest assistance as to the proper methods of treatment of such cases in future.

INDICATIONS FOR THE OPERATION.

In the early days of the operation the danger of infection was so great that the indications were necessarily very narrow, and the operation was only justifiable when the life of the patient was endangered by the tumor, but since the development of antisepsis and the technique of operating these dangers have so much lessened that the author makes the somewhat broad statement that "any ovarian tumor which has been diagnosed early is capable of operative removal," and the conditions which in former times were given as contraindications, such as age of patient, size and malignancy of the tumor, torsion of the pedicle, etc., cannot now be considered as such.

As to the special indications for operation, the author considers three classes: (a) Tumors which have not yet reached any considerable size, but are causing such symptoms as severe pain due to peritoneal irritation, neuralgia due to pressure on sensitive nerves, torsion of the pedicle with characteristic symptoms, and, finally, irregularity of menstruation, particularly menorrhagia; (b) Tumors which have reached considerable size, and for this reason cause difficulty of breathing, digestive disturbance, difficulty in uri-

nating, ascites, and emaciation; (c) Cases in which an immediate operation is necessary to save the life of the patient, as in acute peritonitis, suppuration, hemorrhage into the interior of the tumor, spontaneous rupture, and symptoms of intestinal obstruction.

The contraindications mentioned by him are such conditions as metastasis of malignant growths in neighboring organs, extensive adhesions to the abdominal wall and contiguous structures, and, finally, conditions of the general health which render any operation dangerous.

TECHNIQUE OF THE OPERATION.

Disinfection of the patient's abdomen is most carefully done the day before operation. The anesthetic used is a mixture of chloroform and ether, as it has been found that this mixture diminishes the stage of excitation and keeps the patient in complete anesthesia, with little relative danger in cases in which the lungs and heart are normal. When there is disease of the lungs, as bronchitis and empysema, a pure chloroform anesthetic is used.

The patient being put upon a table which permits her to be placed in the Trendelenberg position, disinfection of the abdomen and vagina is again practiced, and the field of operation surrounded by sterile dressings. When possible the tumor is removed *en masse*, that is, without evacuating its contents by means of a trocar. The object of this is twofold: First, the difficulty in preventing the contents of the tumor from escaping into the peritoneal cavity, and the consequent danger of infection from this source; and second, the danger of escape of portions of a tumor which has malignant characteristics, and their being implanted upon the peritoneum.

The abdominal incision is through the linea alba from a point above the symphysis, extending high enough to allow the tumor to be rolled out of the abdomen. If the pedicle be long and thin it is usually ligated *en masse* by a Bantock or Staffordshire knot, but if it be short and thick the individual vessels are isolated and each one tied separately. If there is sufficient peritoneum it can be sewed up over the stump.

After inspection of the adnexae on the opposite side the abdominal wound is closed, silk or silver being used, as it has been found that the early absorption of catgut predisposes to abdominal hernia. The closure is made in from two to three stages—peritoneum, fascia, and skin. In 245 cases silk was used 158 times and silver 87 times. The wound is then dressed with sterile gauze compresses, kept in place by an abdominal binder.

COMPLICATIONS.

The above technique is that used in uncomplicated cases. The condition which most often modifies this method of operating is the presence of *adhesions*, which may be present between the tumor and abdominal wall, intestines, bladder, uterus, adnexae on opposite side, or the pouch of Douglas. In suspected adhe-

sions between the tumor and abdominal wall it is important that the operator should be certain that he has cut through the peritoneum, and not, as has been frequently done, attempt to separate the peritoneum from the overlying muscle and fascia, thinking that he is really between the tumor and abdominal wall. Fresh adhesions may be separated from the tumor by means of the hand, and the bleeding points caught and tied, but older, fibrous adhesions had better be treated by the application of a double ligature, and cutting between them. The attempt is always made to remove the tumor entire, without evacuation of its contents, but in cases where the adhesions are so numerous as to render this impossible the tumor should be punctured by a trocar, and the fluid drained away; adhesions which before this were impossible to reach can now be gotten at without difficulty.

When adhesions exist between the tumor and intestine or bladder it may be necessary to resect portions of these organs. Such a procedure is particularly important when it is suspected that the tumor has malignant tendencies. The parts thus divided must be later brought together with sutures. Adhesions between the tumor and uterus may give great trouble on account of parenchymatous oozing from the latter organ, which may be so marked as to necessitate its removal. When this oozing occurs deep in the pelvis in the neighborhood of the pouch of Douglas it is best checked by the application of deep sutures or a gauze pack, great care, of course, being observed to avoid tying the ureters.

A further complication which should be borne in mind is the *twisting of the pedicle* of ovarian tumors, which usually occurs on account of some unequal growth of the mass. When the torsion is marked it may cause characteristic symptoms—peritonitis, with hiccough and vomiting, or even symptoms of intestinal obstruction. Later there may be hemorrhage into the interior of the tumor and rapid increase in its volume. By virtue of the impeded circulation areas of necrosis appear on the surface of the tumor and form adhesions with the neighboring organs, or the torsion may be so great that the pedicle becomes necrotic, sloughs through, and the tumor lies in the abdominal cavity as a foreign body.

A tumor may develop between the layers of the broad ligament, when it is known as an *intraligamentary tumor*. Such a condition usually offers the following points of diagnosis: (1) The uterus is strongly pressed to the opposite side of the pelvis by the tumor; (2) The uterus may be markedly elevated or elongated; (3) The bladder would be drawn upwards; (4) The elongated tube occupies a characteristic position above and on the anterior surface of the tumor, and (5) The tumor usually lies deep in the pelvis. An intraligamentary tumor being diagnosed in this way can best be removed by opening the abdomen, splitting the broad ligament by an incision running parallel to the tube, and the tumor shelled out. Oozing may be checked by the application of a Mikulicz drain.

Suppuration in the tumor, a complication which usually makes itself manifest by chills and fever before operation, must receive careful attention to prevent soiling the peritoneal cavity. These cases usually require drainage, particularly if there has been an escape of pus into the abdomen, and also if this pus has been shown by microscopic examination to contain pyogenic bacteria. The same applies to those cysts containing thick colloid fluid, and drainage in these cases should be accomplished by a small strip of gauze drawn through the lower angle of the wound, or through an opening into the vagina through the pouch of Douglas.

Malignant tumors of the ovary deserve special consideration, and may be either of connective tissue, epithelial or dermoid origin. For the most part they grow rapidly, and produce metastasis in various organs. Clinically they are characterized by their rapid growth, emaciation, ascites, and by a certain nodular feel which they give to the examining hand, either on the abdomen or in the vaginal fornices.

It is the rule in Schauta's clinic that whenever a tumor is diagnosed as malignant or of suspected malignancy it is removed whole, and, on account of the tendency of such growths to recur on the opposite side, the other ovary is also removed, even though it be normal.

In pregnancy ovariotomy gives best results for both mother and child if done in the early months. If the patient be first seen in labor one has the alternative of reposition, puncture of the cyst, or Cesarean section. If it is necessary to operate for ovarian tumor during the puerperium the prognosis is usually bad.

If the ovarian tumor be complicated by a *myomata of the uterus* the operative technique must be changed in various ways. If the myoma is causing symptoms from its situation or size, or causing an excessive amount of bleeding at menstruation, castration is indicated. If, on the other hand, the myomata are multiple and of large size, the ovariotomy should be accompanied by supravaginal amputation of the uterus. (It is to be wondered at that he does not advise myomectomy in suitable cases.)

Finally, if one finds, in addition to the ovarian tumor, an accompanying *inflammatory disease on the other side,* that side should be removed entirely. If the lesion of the ovary will permit it, a small portion of it should be left behind to prevent premature climatic changes.

After describing, as above, the technique of the operation, the indications and complications, with the methods of treatment of such complications, the author gives the number of cases from which he derived the foregoing conclusions. In so brief a review as this it is not practical to give all the figures and percentages as to frequency of the various conditions, etc., and those who are after accurate statistics upon the subject we refer to his original article.

Some of the more important figures are as follows: Of the 394 ovariotomies done, 334 were abdominal, and 60 by the vaginal

route. Of the 334 abdominal operations, 259 were single, and 75 were double ovariotomies. As to the relative frequency of the growths on one or the other side of the body, the author draws no conclusions, for in 127 cases the tumor was on the left, and in 132 on the right side. As regards age, the larger number of operations were done during the period of sexual activity of the woman, that is, between the ages of twenty-five and forty-five. Three times was it necessary to operate in children under fifteen years of age, in two of which the tumor was malignant. Malignancy was noted seventy-seven times in 334 tumors (24 per cent.). In other words, one in every four or five ovarian tumors is malignant, as has been previously stated by Leopold and Pfannenstiel. His statistics as to suppuration and drainage are interesting. In all there are fifteen cases in which suppuration of the tumor was noted. Seven of these were examined bacteriologically, with the following findings: Three times staphylococcus pyogenes aureus, twice streptococcus pyogenes, once a diphlococcus, and in two cases the examination was negative. Of the fifteen suppurating cases eight recovered, and seven died. All of these cases were drained.

PROGNOSIS OF OVARIOTOMY.

That which has done most for the marked diminution of the mortality in ovariotomy during the past few years is antisepsis. Certain obvious points in the operation materially influence the prognosis. For example, the size and possible malignancy of the tumor, the presence or absence of adhesions; in short, any of the complications which the author has carefully considered.

Convalescence is usually uneventful. For the pain of which the patient may complain in the first hours after operation she is given morphia subcutaneously. The diet, until she has completely recovered from the effects of the anesthesia, is entirely fluid and in small quantities, milk, tea and a little soup. If catheterization be necessary, the strictest antiseptic precautions are observed. On the fifth day evacuation of the bowels is encouraged by copious enemata of soap and water. In uncomplicated cases the sutures are taken out on the eighth day; on the twelfth or fourteenth day she is allowed to get out of bed, and in eighteen or twenty days may leave the clinic.

Of the *complications which may influence convalescence*, of first importance is secondary hemorrhage. This may result from the slipping of a ligature, or possibly the bleeding may come from a needle puncture in the broad ligament. As soon as one is certain that hemorrhage has taken place it must be sought for and checked by secondary laparotomy. The symptoms by which such a condition may be recognized are well known and need not be considered here.

A second complication of convalescence is fever, which may be due to general infection, peritonitis, or, in a mild degree, infection of the abdominal wound or stitch-hole abscess. Slight fever often occurs as a result of inactivity of the bowels, and usually disap-

pears upon brisk purgation. Abscesses about the abdominal wound must be properly opened and drained, but acute infection and peritonitis usually offer little chance of recovery.

A relatively frequent complication mentioned by Bürger is found in disease of the lungs. This is usually due to the anesthetic, and in the milder form give little or no trouble. Three of his cases have died of pulmonary embolism, and in seventeen of his cases pneumonia was noted.

Intestinal paralysis, with distention, may be a disagreeable complication, and may be so marked as to necessitate laparotomy and puncture of the distended bowel.

The question of the cause of death in the fatal cases is gone into most thoroughly and considered from the following standpoints:

1. Actual cause of death:

Two cases were lost from secondary hemorrhage. Five died of sepsis, of which three had suppurating ovarian tumors, and in two the operation was done in the puerperium. Seven cases had fatal peritonitis, and in five the fatal outcome was due to pneumonia. The other causes of death given are gangrene of the lung, cardiac lesions and fatty heart, pulmonary embolism, perforation of a round ulcer of the stomach, carcinoma, cachexia, and meningitis.

2. From the standpoint of the operation:

Of the thirty-two fatal cases, in nine was death directly attributable to the operation, and in twenty-three to other causes in no way due to the operative interference. It is thus seen that his *total mortality* is 9.55 per cent., and a *corrected mortality* in ovariotomy of 2.68 per cent—most encouraging results.

3. From the standpoint of the severity of the operation:

In five of the nine cases in which death was the direct result of the operation the operation was a very difficult one and attended with many complications. Thus, in uncomplicated cases, the mortality should be very low, or, as given in these statistics, 1.49 per cent. In the thirty-two fatal cases, eleven patients had malignant tumors. The total nummer of malignant cases being seventy-seven, the mortality in this class of neoplasm is 14.3 per cent.

4. From the standpoint of the nature of the operation:

Here we find nineteen deaths after single ovariotomy, ten deaths after double, and three fatal results after ovariotomy and extirpation of the uterus.

VAGINAL OVARIOTOMY.

The author reviews the literature upon vaginal ovariotomy, and gives the advantages and disadvantages of it over the abdominal method as set forth by various investigators. The conclusions of Byford of Chicago are of interest. He has operated on twelve cases in this manner and lost none. In speaking of the operation he says: "The ovary and tube can be reached easier without endangering the intestine. The shock is less, and when adhesions are broken up the resulting inflammation is of less severity. The wound is smaller, is in a better position for drainage, and has less

disposition towards the production of hernia than if the abdomen be opened. It is easier to bring into view and ligate adhesions. Hemostasis can be obtained by local measures—ice and hot water. The retroverted uterus is frequently bound in an anteposition by the exudation resulting from the operation. The danger of opening the abdomen is excluded, and, on the whole, the operation is easier."

Bumm of Basel has operated upon five cases, in which he opened the anterior vaginal fornix twice and the posterior three times. He concludes that in case it is impossible to remove the tumor per vaginum, one can do a section. The advantages given by him for the operation are: 1. Opening the peritoneal cavity in its deepest portion, and the small size of the opening; 2. The avoidance of the disagreeable sequelae of abdominal section; 3. The lessening of the chance of infecting the peritoneum with the contents of the cyst. On the other hand, the disadvantages of this operation given by this observer are: 1. The restricted view of the field of operation; 2. Great danger of wounding the contiguous organs; 3. Difficulty of perfect hemostasis from adhesions; 4. Stretching a short pedicle; 5. Infection from the vagina.

The principles which govern the decision as to whether or not vaginal ovariotomy is the proper procedure in Schauta's clinic are those laid down by him, and are as follows: The indications depend largely upon the free mobility of the tumor and the absence of pedicle torsion, and consequent adhesions. As can be readily seen, the underlying principle is free mobility on the part of the tumor. One can be guided by the following points: (a) Direct mobility of the tumor as ascertained by bimanual palpation. (b) Position of the uterus behind the cyst. In other words, the tumor, not being confined, has escaped from the small pelvis, and will lie anterior to the uterus. (c) The recognition of respiratory movements of the intestines over the tumor. (d) The exclusion of an intraligamentary situation of the growth.

The contraindications, on the other hand, to vaginal ovariotomy are, of first importance, extensive adhesions between the tumor and surrounding organs. Such is particularly the case in these large tumors which so fill the abdominal cavity that it is not possible to test their mobility by methods of examination. Twisted pedicle, which is so frequently accompanied by extensive adhesions, is another complication, particularly if it has existed for some time and has been accompanied by symptoms of peritoneal inflammation. Again, cysts with colloid vicid contents had best be removed by the abdominal route, and the same may be said for multilocular cysts for obvious reasons. Malignant tumors should not be removed per vaginam, but in cases of doubt the vaginal incision can be used as an exploratory procedure. And, finally, one should not choose the vaginal route for intraligamentary tumors which have reached considerable size, since they cannot by this method be separated from the overlying peritoneum. So much for the advantages and disadvantages of this method of operating. He next considers the

TECHNIQUE OF OPERATION.

Complete and most careful preparation of the patient is begun the day before the operation, just as if an abdominal section were to be done. The importance of this is that one can never tell with certainty whether the abdomen will be opened or not. In addition to this, most careful disinfection of the external genitalia and vagina. The patient being narcotized, is placed on the operating table with the knees and thighs flexed in the so-called lithotomy position. The operator sits between her legs, with an assistant on each side. The cervix being drawn down by means of a bullet forceps, a transverse incision is made in the anterior vaginal wall, and the vesico-uterine space entered. The bladder is now separated from the anterior wall of the uterus, and the peritoneum opened. Now, if the cyst be small, it can be grasped by suitable forceps, brought down, the pedicle ligated, and the tumor removed. But if large, its contents must be first evacuated by means of a suitable trocar, care being taken to avoid leakage of the contents of the cyst. The tumor having been removed, the peritoneal and vaginal wounds are closed, or, if the case is one in which it is thought necessary, a portion of the wound can be left open and drained.

The after-treatment and convalescence of such cases is usually most simple. The patient generally feels perfectly well as soon as she has recovered from the anesthetic. The diet must be restricted for the first few days, but these patients are usually up and about eight to nine days after the operation. In this manner, during the last three years, there have been sixty cases operated upon in Schauta's clinic, of which forty-one were single, uncomplicated cases, and nineteen cases in which the operation was complicated by coincident removal of the uterus. In this last series the mortality was comparatively high, being two deaths in nineteen cases, or 10.5 per cent., but in the forty-one uncomplicated cases there were *no deaths*. Just as in abdominal ovariotomy, the author considers the possible complications of the vaginal operation, but we will not bother the readers with his figures. He ends his extensive article with the following conclusions as to the utility of the vaginal method of operating as compared with the abdominal:

1. The procedure is less dangerous, as the abdominal cavity is not opened to so great an extent.
2. Disturbance to menstruation is slight.
3. Tendency to ventral hernia is done away with.
4. The patient carries no scar from the operation.
5. Drainage, in those cases in which it is necessary, is simple antd effectual.
6. Operation can be done in connection with other operations on the genitalia.
7. Convalescence is much quicker and more satisfactory.
8. The future condition of the patient's health is, in a large percentage of cases, good.

MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

PAROXYSMAL TACHYCARDIA.

At the eighteenth session of the German Congress of Internal Medicine, held at Wiesbaden in April, 1900, this subject was discussed by various authorities.

Hoffman of Dusseldorf described the condition as follows: The attack of paroxysmal tachycardia begins suddenly, oftenest without any apparent reason. The rythm is regular during the crisis, while, before and after, transitory irregularities are noted, the condition ceasing as suddenly as it has commenced. Although the most diverse explanations have been given of the condition, the anatomical and pathological researches carried on upon this subject have up to the present been productive of but one result—they have eliminated myocarditis as an essential condition. Frequently enough, it is true, interstitial or parenchymatous myocarditis is found, but it appears then to be a consequence of hypertrophy of the cardiac muscle. Idiopathic dilatation of the heart, considered by Martins as the cause of the attack, is not met with in all cases. The urinary secretion presents certain peculiarities during the crisis; one who, immediately preceding an attack, has been passing the normal quantity of urine of normal specific gravity (1.015 to 1.020) presents during the course of the paroxysm a marked polyuria, while the specific gravity often sinks as low as 1.002. This and the pupillary inequality, lively color of the skin, sweating and occasional vomiting definitely localizes the cause of the affection in the central nervous system. An analysis of sphygmographic tracings led Hoffman to the conclusion that the tachycardial paroxysm is due to an accumulation of supplementary systoles, this pathological state being considered more the resultant of the action of different causes upon a predisposed individual than a morbid entity. In conclusion, to distinguish this condition from palpitation of the heart, Hoffman proposes to give it the name "heart-galloping" (Herzjagen) instead of tachycardia. Nothnagel called attention to the analogy existing between this condition and epilepsy, he also believing that to this paroxysmal tachycardia we should accord the characters of a pathological individualty, *i. e.*, a special individual predisposition.

Rosenstein mentioned that in 1872 he published a case of paroxysmal tachycardia without cardiac dilatation, and this case was of extreme peculiarity, in that the man had but to be stood upon his head to experience immediate relief. Rosenstein insisted upon the necessity of carefully examining to see whether an organic cardiac lesion exists. In one of his cases he observed the patient in two attacks during which the pulse rate reached 250 per minute. Eight days later the patient developed hemiplegia without loss of consciousness, the accident probably being caused by an embolus.

CARDIAC ARYTHMIA.

In the transactions of the same congress Wenckebach stated that the recent discoveries in physiology have permitted us to penetrate more deeply into the study of the irregularities of the heart's rythm. The contractions of the heart are under the control of three principal factors—1st, the automatic excitability of the cardiac muscle; 2d, the faculty possessed by the muscular fiber of transmitting motor excitations to neighboring fibers, and 3d, the contractility of the muscular fiber. These three elements, although autonomous, are capable of being influenced by the nervous system. Trouble arising in one or the other provokes an arythmia of special form.

The automatic excitability is often exaggerated, and this manifests itself in the appearance of supplementary systoles and gives rise to those modifications of the pulse known as bigeminal (dicrotic), trigeminal (tricrotic), etc.

The faculty of transmitting motor impulses may be diminished or increased. In the first case we have an intermittent pulse, without supplementary systoles, simulating the conditions known as allorrhythmia. These intermissions may produce a true bradycardia when, of two consecutive stimuli, the first remains without effect, the second only being followed by a ventricular contraction. If to this exaggeration of the faculty of transmission there is joined an augmented excitability of the muscular fiber, we have delirium cordis. The arhythmia produced by a diminution in contractility appears to correspond to the dicrotic pulse.

The troubles of each of these three functions may be observed separately or combined together. If they result from a muscular alteration they are permanent, while if they are caused by a nervous influence they are transitory.

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CHARACTERISTICS OF THE DESCENDANTS OF HEREDITARY SYPHILITICS. Finger. *Wiener klinische Wochenschrift*, 1900. Nos. 17, 18, 19.

In an exhaustive article, in which all the literature is carefully digested, and to which he adds his own wide experience, Finger comes to the following conclusions regarding the transmissibility of syphilis and the syphilitic manifestations:

1. It must be regarded as theoretically possible that an inheritance of syphilis can take place upon the second and perhaps further generations as upon the first; in this wise that three different manifestations of parental syphilis can be transmitted independently of each other, namely, (A) true virulent syphilis, (B) syphilotoxic dystrophic disturbances, and (C) immunity.

A. *Transmission of true, virulent syphilis to the second generation.*

2. Although this is theoretically possible, up to the present no case of this nature has been brought forward which is entirely free from objections.

3. In order to prove the transmission to the second generation the following postulates must be proven: (a) The hereditary syphilis of one of the parents must be proven beyond a doubt. (b) Acquired syphilis in the second generation must be conclusively ruled out. (c) The nature of the syphilis in the third generation must be proven to be inherited.

4. In order that there be no doubt that it is a case of inherited syphilis in the second or third generation, it must make its manifestations at the time of birth or shortly afterwards.

5. The question of exclusion of acquired syphilis in the second generation is a difficult one, since it is dependent entirely upon negative arguments, and since in each separate case it is impossible to the most conscientious observer to bring his subjective conviction acquired by intimate knowledge of the single case into an objectively unobjectionable form.

6. From the standpoint of the above-mentioned postulates, the majority of the twenty-four observations which up to now have been made in this connection is open to objection, although some (cases of Nunn, Mensinga, Hutchinson) are striking in the highest degree. Still the latter are not conclusive, and, in fact, to be regarded as absolutely conclusive a case would have to conform to the following type: The mother is hereditarily syphilitic and gives birth to a hereditarily syphilitic child. Shortly after the birth of the same the father of the child is infected with syphilis illegitimately.

B. *Transmission of syphilotoxic dystrophic disturbances upon the second generation.*

7. This question is still more difficult to answer than the first, since the conception of syphilotoxic dystrophic dusturbance as manifested by transmission to the first generation is not as yet completely settled and fixed.

8. In spite of previous works in this connection, this question has not been cleared up as yet, because: (a) These syphilitic dystrophies furnish nothing absolutely characteristic. (b) Analogous dystrophies are found in families where all known etiological factors, especially syphilis, tuberculosis, intoxication with alcohol or lead, are wanting. (c) Such dystrophies, if of syphilitic nature, should appear most frequently in the genuinely, hereditarily syphilitic children, but, on the contrary, up to the present, in contrast to a small number of children, who furnish dystrophies together with genuine inherited syphilis, we have a much larger group of children showing no genuine inherited syphilis, but only dystrophies.

9. If we have undoubted general nutritive disturbances, debility, asthenia, infantilism in children of syphilitic parents, still the question would remain whether such disturbances would not have arisen even if syphilis had not been present.

10. In regard to the question of the transmission of dystrophies to the second generation, each case must conform to the following postulates: (a) Hereditary syphilis must be proven be-

yond a doubt in the second generation. (b) Acquired syphilis in the second generation must be eliminated. (c) Also in the third generation syphilis acquired at an early age must be eliminated.

11. This last point, the elimination of acquired syphilis in the third generation, is necessary, because we know now from many observations that dystrophic disturbances in a child may be developed not only after inherited, but also after syphilis acquired early in the suckling period, which may be easily mistaken for a hereditary dystrophy.

12. From this point of view, the thirty-one cases of this kind hitherto described are interesting, but not fully conclusive. Here the especial difficulty lies in the elimination of acquired syphilis in the second generation.

13. From a study of these dystrophies, which have been regarded as syphilotoxic, we must conclude that they become milder and rarer from generation to generation.

14. From this it would follow that syphilis in its influence upon posterity leads less to a degeneration than to a diminution of the race.

C. *Transmission of absolute and relative immunity upon the descendants.*

15. For many years it has been known that the offspring of syphilitic parents possess an absolute or a relative immunity towards the syphilitic infection. This view was based upon several observations: (a) The observation that where syphilis has been endemic for a long time it runs a markedly milder course. (b) The observation that syphilis, brought to people who have never had syphilis, appears there at first with severe manifestations. (c) The finding of sporadic cases of malignant syphilis where the victim's ancestors had been free from syphilis for several generations. (d) The observation that mothers in the contagious stage of syphilis do not infect their healthy offspring (Profeta's law).

16. These observations, although worthy of notice, furnish no unimpeachable scientific proofs of the inheritance of immunity, and can be satisfactorily explained along other lines.

17. On the other hand, there is a considerable number of facts which go to prove that the inheritance of immunity is inconstant, to say the least, and which suggest that the doctrine of the inherited immunity of syphilis needs a complete revision.

18. These are: (a) The fact that in acquired syphilis itself the immunity is often transient, reinfection is observed, and that reinfections would perhaps be more frequent if certain factors, social and otherwise, care, routine, marriage, old age, impotence, did not stand in the way of a reinfection. (b) The fact that not a few cases are known in which hereditarily syphilitic (fourteen cases) or syphilotoxic-dystrophic (137 cases) or entirely healthy children (twenty-nine cases) of syphilitic parents infect themselves with syphilis. (c) The fact that in these cases not only absolute, but also relative immunity, *i. e.*, an especially mild course of the disease, is not to be found.

19. The fact that in a number of children of syphilitic parents the immunity, if indeed present, was lost at the time of puberty, proves to us that these individuals could not transmit an immunity to their children and descendants.

20. The facts given above, which oppose the view that immunity to syphilis can be inherited, must make us wonder whether we have the right to hold any longer to the doctrine of the unlimited duration of immunity in acquired syphilis, or still further to the thesis of the inheritance of immunity.

* * *

FATAL HEMATEMESIS DUE TO ESOPHAGEAL VARICES OF ALCOHOL ORIGIN. Muller. *Gazette Hebdomadaire de Medecine et de Chirurgie*, 1900, May 20, p. 470.

Although cases of fatal hematemesis arising from esophageal varices in the course of cirrhosis of the liver have been described, yet this case of Muller's is of especial interest because of its gravity, the patient dying twenty-four hours after a single hemorrhage, and because of the complete absence of hepatic cirrhosis, the liver presenting no other alteration than a fatty degeneration of high degree, and of alcoholic origin. The patient was a man of forty-three, an habitual drinker of absinthe, usually becoming intoxicated at least three times a week, and these attacks of inebriety were usually associated with profuse vomiting. For one year he had complained of severe epigastric pain. During the night before his admission to the hospital, for the first time and with no prodromal symptoms, he had a severe hemorrhage from the stomach, two to three liters of black blood, with no alimentary material, being vomited. The patient became unconscious, the temperature fell to 36.2° C., the pulse became small, and, notwithstanding all efforts to save him, the patient died in less than twenty-four hours after the hematemesis. The clinical diagnosis made was gastric ulcer, cancer, terminal hematemesis.

The autopsy, however, showed that this diagnosis was entirely wrong, and demonstrated, 1st, that death had been due to an abundant hemorrhage coming from the esophageal mucosa, where there existed manifest varices; 2d, these esophageal lesions were situated just above the cardia and just below the pharynx, *i. e.*, the two points where the mucous membrane had been in the most intimate contact with the noxious agent, alcohol; 3d, the liver presented in a marked degree fatty degeneration, and there was no cirrhosis, either portal or biliary.

From a study of his own case Muller comes to the following conclusions regarding the evolution of the process: 1st, there has been the local, caustic action of the alcohol upon the mucous membrane of the esophagus and stomach (*phlebactasies alcooliques*); 2d, there has been a subacute and chronic intoxication by this agent, provoking an intense fatty degeneration of the hepatic cells, and, 3d, the hemorrhage has been of such extreme severity because of the alterations in the liver; while from a consideration

of this case and the cases from the literature he is led to conclude: 1st, that cirrhosis is not necessarily the cause of esophageal varices; 2d, these may be of alcoholic origin, and, 3d, to the local lesions (gastritis, esophagitis), brought about by contact with the alcohol, must be added, as contributory causes of the hemorrhage and necessary to explain its extreme gravity, the fatty degeneration of the liver of alcoholic origin.

* * *

RUPTURE OF THE ESOPHAGUS CAUSED BY VOMITING. Bowler and Turner. *British Medical Journal*, 1900, March 31, p. 763.

This case is of interest because of the extreme rarity of such accidents. The patient, an old man of sixty-two, was seized with a violent attack of vomiting after a purgation. The vomiting was followed by collapse and by agonizing epigastric pain, the patient localizing his pain in the dorsal region, between the two shoulders, and in the epigastric region. The vomiting ceased as soon as the pain appeared. As stimulants and laudanum by mouth immediately increased the pain, it was thought that there had probably been a perforation of the stomach, but operative interference was contraindicated on account of the weak condition of the patient. Little by little emphysema of the face and neck appeared, and shortly afterwards, twenty-two hours after the commencement of the attack, the patient succumbed.

The autopsy showed that there had been a rupture of the esophagus one and one-half finger breadths above the diaphragm; that the pleural cavity and posterior mediiastinum were filled with brownish liquid, and that the emphysema had extended especially towards the left, causing also a left pneumothorax. The size of the rupture was about one finger's breadth in diameter.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

THE PRESENT STATUS OF COCAINE ANESTHESIA BY INJECTION INTO THE SPINAL CANAL.

SINCE April, 1899, when Prof. August Bier of Kiel first reported the lumbar-puncture method of producing a general anesthesia of the lower portion of the body, many have followed in his footsteps, and today we find about twenty publications bearing upon this comparatively new process.

We will give a few cases from different authors somewhat in detail, so that a more accurate understanding of the accompanying symptoms may be gathered.

BIER: (1) August 16, 1898. Laborer, thirty-four years; injected 3 c. c. one-half per cent. cocaine; operated twenty minutes later; no pain; quiet, pulse somewhat rapid. Two hours after operation there was pain in back and legs, and violent headache;

pain in legs soon disappeared, but headache lasted through the following day. No further complications.

(2) Woman; osteomyelitis; 1 c. c. 1 per cent. cocaine; perfect anesthesia after five minutes; operation painless; pulse full and strong, though rapid. No complications.

(3) Boy, fourteen years old; stiff knee-joint; 3 c. c. one-half per cent. cocaine. Patient cried during operation, but pain was only slight. Following day pain in back and left leg, lasting one week. No other after-effects.

(4) Boy, eleven years old; tuberculosis of coccyx; .5 c. c. of cocaine, 1 per cent.; anesthesia after nine minutes; operation painless; some pain in region of injection, which disappeared next day. No other complications.

(5) Man, thirty years old; fracture of thigh, with suppuration; 1 c. c. of 1 per cent. cocaine; anesthesia after twelve minutes; operation painless; only slight headache.

(6) Girl, seventeen years old; osteomyelitis of femur; .5 c. c. of one-half per cent. cocaine: operated twenty minutes later; anesthesia complete. No complications.

Dr. Bier believed so firmly in this anesthesia that he had it tried on himself, using one-half c. c. of 1 per cent. cocaine. Only for a second, as the needle was inserted, did he feel the least pain; continued to work afterwards, and was consequently laid up for nine days. In none of his cases did he have any post-operative complications.

* * *

SEVEREANO and GEROTA (*Bull. et Mém. de la Soc. de Chirurgie de Bucharest*, January, 1900) have experimented on animals, and conclude that the injections are only dangerous when the dose of cocaine or the volume of injected fluid is large. Eight cases on man:

(1) Hydrocele; 3 c. c. 1 per cent. cocaine; five minutes, anesthesia of legs and thighs; fifteen minutes, anesthesia of skin as high as navel; duration three hours; radical cure. After operation, headache and nausea.

(2) Bullet in external condyle of femur; 4 c. c. injected; ten minutes, complete anesthesia of lower part of body; resection of condyle, extraction of bullet in the joint; anesthesia three hours and twenty minutes. After operation, slight headache.

(3) Abscess of leg, popliteal space, and septicemia; 3 c. c. injected; anesthesia perfect. After operation, abundant vomiting, headache, thready pulse; stimulants necessary.

(4) Excision of sarcoma of thigh; 2 c. c. injected; anesthesia perfect. After operation, headache.

(5) Tuberculosis of the aponeurosis of the thigh; 2 c. c. injected; anesthesia perfect. After operation, no trouble.

(6) Inguinal hernia; 3 c. c. injected; anesthesia perfect. After operation, no trouble.

(7) Strangulated inguinal hernia, with stercoral abscess and gangrene of the intestine; 3 c. c. injected; twenty-five minutes, anesthesia perfect as high as navel; operation; castration, extirpation of purulent hernia sac, resection of intestine; artificial anus; anesthesia lasted forty minutes. After operation, headache.

(8) Rupture of perineum; 3 c. c. injected; twelve minutes, perineum insensible; tweny-five minutes, anesthesia up to breasts; perfect anesthesia of the lower half of body for operations; usual dose 3 c. c. 1 per cent. solution; anesthesia of abdominal wall as high as navel; usually post-operative vomiting and intense headache; in three cases elevation of temperature. Intoxication by cocaine depends upon the susceptibility of the individual. Injections made between fourth and fifth lumbar vertebrae.

Be sure that the needle is in the canal; then inject the cocaine. The authors conclude that the method is yet in the experimental stage, and they neither reject nor accept it as superior to other methods of anesthesia.

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Jonnesco (*Bull. et Mém. de la Soc. de Chirurgie de Bucharest*, January, 1900) reports four cases:

(1) Man, thirty-nine years; inguinal hernia; 2 c. c. of the solution (cocaine 60 c. g., morphine 15 c. c., water 60 g.). The puncture is made between the last lumbar vertebra and the sacrum; anesthesia after fifteen minutes; lasted two hours forty-five minutes. During operation, dryness of mouth and great thirst, afterwards vomiting; later, vomiting and headache; evening temperature 104.1° F.; stimulants; headache persisting.

(2) Man, nineteen years old; tuberculous fistulae around left knee; 4 c. c. injected; anesthesia not obtained after forty minutes; incision painful; vomiting during the day; dilatation of the pupils; next day headache; temperature normal.

(3) Man, fifty-three years; epithelioma of penis; 3½ c. c. injected; anesthesia complete in ten minutes; lasted an hour.

(4) Woman, forty-four years; removal of fibroma of the uterus; 3 c. c. injected; in twenty minutes sensibility still persisted; had recourse to chloroform; no nausea nor vomiting.

Résumé.—In two of these cases anesthesia was not obtained with relatively large doses. Explained by particular individual tolerance. In the two others anesthesia was complete. Anesthesia lasted two hours in one case and one hour in the other, showing that all operations can be undertaken in the lower part of the body, anesthesia extending from the umbilicus to the toes.

Conclusion.—Cannot pronounce for or against this method of anesthesia; the published cases are too few. Draws attention to the complications observed immediately after the puncture and on following day. These secondary phenomena give ground for thought. Elevation of temperature to 104.1°, accompanied by intense headache, nausea and vomiting, are complications which should be noted immediately.

SELDOWITSCH (*Centralbl. für Chirurgie*, 1899, Vol. XXVI, p. 1110) later gave his experience, and reported four cases of major surgery performed under this anesthesia:

(1) Amputation of foot (Pirigoff) for carcinoma; woman, fifty-nine years; injected 1 c. c. one-half per cent. cocaine into spinal canal between third and fourth lumbar vertebrae; insensibility after eight minutes; operation painless, lasted forty minutes; after-effects, chill, rise of temperature, rapid pulse, headache, nausea and vomiting; wound healed per primam.

(2) Amputation of leg and excision of inguinal glands for sarcoma of calcaneum; woman, fifty years; injected .6 c. c. 1 per cent. cocaine between third and fourth lumbar vertebrae; insensibility after nine minutes; operation painless; after-effects, chill, temperature 102.5° F., rapid pulse, vomiting; died in five weeks from cachexia; autopsy showed nothing abnormal in spinal canal or cord.

(3) Woman, fifty-five years; epithelioma of knee and excision of inguinal glands; cocaine as above; operation painless; after-effects, chill, rise of temperature, rapid pulse.

(4) Girl, thirteen years; cocaine as above; resection of tuberculous knee; after-effects, chill, temperature 104.1° F., rapid pulse.

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RACOVICEANO PITESTI (*Bull. et Mém. de la Soc. de Chirurgie de Bucharest*, December, 1899) reports sixteen cases—ten men and six women:

(1) Man, thirty-eight years; injected 2 c. c. 1 per cent. cocaine; anesthesia after twenty-two minutes; amputation of right foot; painless; patient excited during the operation. No after-effects.

(2) Man, twenty-four years; injected 4 c. c. 1 per cent. cocaine; anesthesia appeared after seventeen minutes; operation cauterizing phagedenic chancroid; patient nauseated, vomiting and sweating; had to inject ether. After-effects, slight headache.

(3) Woman, twenty-three years; ovarian cyst; injected $3\frac{1}{2}$ c. c. 1 per cent. cocaine; anesthesia in thirteen minutes; operation painless; vomiting; in an hour and one-half syncope and feeble pulse; eyes fixed; cyanosis; respiration very shallow; stimulants and artificial respiration. After half-hour all of these symptoms disappeared; patient in good condition next day.

(4) Woman, fifty-four years old; urethral polyp; anesthesia after twelve minutes; operation painless; two to four hours after, weakness, nausea, headache, cold extremities, cyanosis, irregular and shallow respiration. Two days later indefinite pains through body; recovery good.

(5) Woman, forty years; retroflexion of uterus; anesthesia after twenty minutes; pulse 128; laparotomy; painful; had recourse to chloroform; much vomiting; anesthesia altogether unsatisfactory.

(6) Man, nineteen years; osteomyelitis of tibia; anesthesia after five minutes; pulse 128; operation painless; patient vomited from time to time during operation; afterwards dilatation of pupils, sweating, syncope, cyanosis; revived by stimulants.

(7) Man, twenty-two years; hydrocele; injection of cocaine, morphine and trinitrin; anesthesia after nine minutes; pulse 120; operation painless; nausea and vomiting; afterwards vomiting, headache and general depression.

(8) Man, sixteen years; right inguinal glands excised; anesthesia after thirteen minutes; operation painless; afterwards nausea and slight vomiting, headache, sweating. These disappeared the next day.

(9) Woman, twenty-nine years; cyst of left ovary; anesthesia after ten minutes; headache; abundant sweating, nausea and attempts to vomit. No bad after-effects.

(10) Man, nineteen years; left scrotal hernia; injected between third and fourth lumbar vertebrae two syringefuls of one-half per cent. cocaine; anesthesia after six minutes; operation quite painful; used chloroform; afterwards vomiting.

(11) Man, thirty-two years; ascites; injected three syringefuls 1 per cent. cocaine between third and fourth lumbar vertebrae; anesthesia complete; operation painless; nausea, rapid pulse and vomiting; no symptoms after twenty-four hours.

(12) Man, thirty years; fistula in ano; anesthesia after fifteen minues; operation painless; afterwards nausea and headache.

(13) Woman, twenty-eight; perinephritic abscess; after thirteen minutes anesthesia complete; operation painless; pulse 120; nausea and slight vomiting.

(14) Old man, seventy-two years; inguinal hernia; anesthesia complete after seven minutes; operation painless; afterwards pulse rapid, feeble.

(15) Young man, sixteen years; hypospadias; anesthesia after twenty-five minutes; after operation, sweating and nausea, with slight vomiting.

(16) Man, twenty-four years; phimosis; anesthesia after five minutes; operation painless; after operation, slight headache, nausea and slight vomiting.

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From the *Centralbl. f. d. Grenzgebiete d. Medizin u. Chirurgie*, May 8, 1900, we take the following references:

(1) Bier: "Versuche über Cocainisierung des Rückenmarkes," *Deutsche Zeitschrift für Chirurgie*, 1899, Bd. VI, p. 361.

(2) Bouchard: *Comptes Rend. Hebd. des Séances de la Société de Biologie*, 1899, November 11.

(3) Chaput: "Anesthesie par la Cocaine," *Bulletins et Mém. de la Société de Chirurgie de Paris*, December 13, 1899.

(4) Jaboulay: "Injections de Liquides medicamentaux dans les Meningés," *Lyon Medical*, 1898, Bd. LXXXVIII, No. 20.

(5) Ders: "Les Injections Intra Meningés de Morphine et de Cocaine," *La Semaine Medicale*, 1899, Bd. XXIX, p. 432.
(6) Ders: "La Cocainisation de la Moelle," *La Semaine Medicale*, 1899, Bd. XXIX, p. 156.
(7) Jacob: "Duralinfusion," *Berl. Klin. Wochenschr.*, 1898, Bd. XXXV, Nos. 21-22.
(8) Ders: "Experimentelle und Klinische Erfahrungen über Duralinfusion," *Deutsche Med. Wochenschr.*, 1899, Nos. 3 and 4.
(9) Schiassi: "Un Procedé Simplifie de Cocainisation de la Moelle," *La Semaine Medicale*, 1900, Bd. XX, No. 11.
(10) Seldowitsch: "Ueber cocainisierung des Rückenmarkes nach Bier," *Centralbl. für Chirurgie*, 1899, No. 41.
(11) Siccard: "Essais d'Injections Microbiennes Toxiques et Therapeutiques par Voie Cephalo-Rachidienne," *Comptes Rend. des Séances de la Société de Biologie*, 1898, April 30.
(12) Ders: "Inoculations Sous-arachnoidiennes chez le Chien," *ibidem*, 1898, 29 April.
(13) Ders: "Toxine et Antitoxine Tetanique par Injections Sous-arachnoidiennes," *ibidem*, 1898, 12 November.
(14) Ders: "Injections Sous-arachnoidiennes de Cocaine chez le Chien," *ibidem*, 1899, 20 March.
(15) Ders: *La Presse Medicale*, 1899, No. 39.
(16) Ders: "Thèse de Paris," 1899.
(17) Tuffier: "Analgesie Chirurgicale par l'Injection Sous-arachnoidienne Lombaire de Cocaine," *Comptes Rend. des Séances de la Société de Biologie*, 1899, Novembre 11.
(18) Ders: "Analgesie par la Cocaine," *Bullet. et Mém. de la Société de Chirurgie de Paris*, 1899, Novembre 29 und Dezember 13.
Added to the above list are:
(19) Discussion, *Bull. et Mém. de la Soc. de Chirurgie de Bucharest*, January, 1900.
(20) Discussion, same, December, 1899.

The method of introducing the cocaine is through a fine needle inserted into the lumbar cord after the manner of the ordinary "lumbar puncture." The insertion is made between the spinous processes of the third and fourth or fourth and fifth lumbar vertebrae into the subarachnoid space. Higher up in the cord has not been satisfactory. A little cerebro-spinal fluid is withdrawn to make certain that the needle is in the canal, then a small amount of cocaine is injected. Bier recommends .5 c. c. either in a one-half per cent. or 1 per cent. solution, but others use as high as 3 or 4 c. c. usually in 5 per cent. Bier's reported results are certainly the most satisfactory, but it is possible that the eye of the inventor is a little blind. Pitesti has used morphine with the cocaine, morphine and trinitrin, but finds the 1 per cent. cocaine best. The anesthesia comes on from five to forty minutes after the fluid is injected, and lasts from forty minutes to three and one-half hours.

Usually insensibility begins in the feet, and gradually ascends as high as the umbilicus, but with the larger injection reaches the ensiform cartilage, and even to the breasts. In a few cases the anesthesia has begun above and descended to the feet. Women and people of a nervous temperament are influenced more gradually. The onset commences with a numbness in one or the other leg, accompanied by a tingling sensation; this may be followed by a true paralysis of the lower limbs, though great nervousness, with perspiration, depression and torpor, does occur.

As we said above, Bier alone reports no apparent complications, but all other authors admit them both during and subsequent to their operations. We will quote Pitesti, who agrees with the others, but is clearer in his description: "The complications are immediate and secondary. The former show some of the following: Tingling sensation, paresis, loquacity, nausea, repeated vomiting, abundant perspiration, involuntary evacuation of feces and urine, signs of syncope without actual syncope. The pulse-rate increases (except in the case of an old man, in whom it fell to 40 per minute, and became imperceptible), and there is accompanying sleepiness. The commonest complication is vomiting, especially in abdominal operations."

The secondary complications may consist of the continuance of the immediate ones—vomiting for forty-eight hours, especially in women who have had an excessive dose of cocaine, pulse 120, temperature 101.6°, returning to normal in twenty-four hours. In one woman after a laparotomy cariac syncope appeared at the end of seven hours. She was revived by stimulants, but the syncope returned a second time. In another woman a syncope lasting about ten minutes appeared at the end of eight hours after the operation.

Injections of ether and caffeine are excellent for stopping the above complications.

The time has hardly come yet when any definite conclusion can be reached as regards the relative merits between cocaine anesthesia by lumbar puncture and chloroform or ether. The thirty-eight observations cited above show no more serious complications than often accompany our general anesthetics, such as nausea, vomiting, rapid and weak pulse, cyanosis and depression. In character they do not seem to be as grave. The death reported did not occur for five weeks after the operation, and was clearly independent of it.

The greatest advantage is gained where some disease of the respiratory tract contraindicates the general anesthetics; also the terrible dread of losing consciousness, which causes many patients to refuse operation, is aborted.

Side by side with the general anesthetics the lumbar-puncture method is going to take its place unless some more serious objection to it is brought out than has so far appeared.

PATHOLOGY AND HYGIENE.

Under the Supervision of Robert Reuling, M.D., Baltimore.

Remarks on Plague in the Lower Animals. Frank G. Clemow, M.D., D.P.H. *British Medical Journal*, May 12, 1900, No. 2054.

The association of epidemic disease in human beings with disease in lower animals is as old as the history of epidemic disease itself. The great historical epidemics of influenza, cholera and smallpox have frequently been associated with a murrain among horses, cattle and sheep, and at times with disease in wild animals. But this coexistence of disease in man and brute appears to have been most often and most definitely met with in the case of plague.

Modern research has clearly established the fact that the infection of plague can produce a disease closely resembling plague in man, not only when artificially introduced into the tissues of certain animals, but that it not infrequently does so under natural conditions. Besides the great group of vertebrata, certain families of the invertebrata have also been shown to be either liable to an attack of plague or to be capable of affording growth to the plague bacillus when artificially introduced into their tissues. Among vertebrata the mammalia are more susceptible to plague than either birds, reptiles or fishes. It is indeed open to doubt whether any of the last three groups are capable of becoming the hosts of the plague bacillus, at any rate under ordinary conditions.

Of all animals, rodents are most susceptible to the plague. The principal rodent animals in which plague has been observed to occur, either naturally or experimentally, are rats, bandicoots, mice, squirrels, guinea-pigs, porcupines and marmots.

The experimental evidence of the occurrence of the plague in various lower animals is full of interest, but most of it must be omitted. That portion of the article which deals especially with the proofs of the existence of the disease in rats and its conveyance by various means to man will be more especially considered in this review.

PLAGUE IN RATS.

Under Natural Conditions.—It has been proved beyond question that rats frequently suffer and die from plague, and it can scarcely be doubted that they play a considerable part in the spread of the disease. Until recently the spread of the disease was thought to be brought about by a special breed of rat, Nesokia; but since the spread of plague to the Southern Hemisphere, particularly to Madagascar and South America, where the Nesokia is unknown, this view has become untenable.

When rats are attacked with plague they usually leave their underground habitations and migrate, often for a considerable distance. In most instances the actual migration is not observed,

and its occurrence is only inferred from the disappearance of rats from one neighborhood and their appearance in unusual numbers in some other neighborhood. This was what occurred in Bombay in 1896. In Calcutta, where plague appeared in April, 1898, the rats almost disappeared from the native quarters where before they had roamed. Among those which remained a considerable mortality occurred, which was proven in certain instances to have been due to plague. In Mandoi, the quarter of Bombay first attacked, "thousands" of rats were said to have died about a month before the plague appeared in human beings.

The symptoms of plague in rats under natural conditions appear to vary considerably. Buboes, as is well known, may occur. Whether rats develop the pneumonic form of the disease in nature is uncertain; that it can be produced in them artificially is conclusively proven. The disease appears usually to become septicemic before the death of the rat, and the organism can be grown from many parts of body. Severe affection of the nervous system is also evidently present, just as in man, as indicated by spasmodic and paralytic symptoms.

As to the sources of infection of rats, they are, of course, numerous. That drying kills the plague bacillus very readily is well established, but the following experiments of Okada show that in moist soil it will live some time. Okada used for his experiments soil obtained from the surface of earthen floors, and from "below the floors" of rooms in which plague patients had lain. With soil obtained from twenty-six different sites fifty-seven mice in all were inoculated. Of these, fourteen died of plague, eight of tetanus, three of malignant edema, six from other causes, and twenty-four remained alive. In some of his successful experiments the soil was kept for as long as eleven days before being inoculated.

Kitasato only once succeeded in infecting an animal with plague, by injecting into its tissue the dust from an infected room.

TRANSMISSION OF INFECTION FROM RATS TO MAN.

If the manner in which rats contract plague is to a great extent uncertain, it is no less uncertain how the disease is usually transmitted to man by these animals. Direct transmission from this animal to man by means of a bite from an infected animal must be extremely rare. Only two instances are given in which such an occurrence has been observed. In one the patient had been bitten by a rat on both great toes; the skin was penetrated, and blood oozed from the wounds; an attack of plague followed, from which he ultimately recovered. In the second instance gangrene developed around the wound, and the patient died.

There is very good reason to believe that plague may be and is spread from rats to other rats, and perhaps to human beings by insects, of which probably the flea is the most important.

ON THE RELATIONSHIP BETWEEN GRANULAR DEGENERATION IN THE RED BLOOD CELLS AND OTHER MORPHOLOGICAL CHANGES IN THE BLOOD, WITH SPECIAL CONSIDERATION OF THE CHANGES IN LEAD POISONING. Dr. Hamel. *Deutsch. Archiv für Klin. Medicin*, Vol. 67, Nos. 3-4.

This article is of special interest to those interested in the subject of hematology; it contains a careful study of a large amount of clinical material especially limited to conditions in which degenerative blood changes would be expected, namely, cases of lead paralysis (twenty-five cases), carcinoma (eight cases), chlorosis (twelve cases), tuberculosis (nine cases), acute febrile diseases (seven cases), syphilis (twenty-four cases), pernicious anemia (one case), various conditions in which the examinations were negative (six cases), and various conditions in which the results were positive.

As is well known to most readers, this granular degeneration in the red blood-cells was only quite recently described by Grawitz, and has since then been found in various conditions by Litten, Bloch and others. The author, after using the various stains which have been used by other investigators, found the following very simple method to bring out the changes in red blood-cells most satisfactorily:

A small drop of fresh blood is obtained on a thin cover-glass, and then covered with a second similar glass. The mere pressure of the latter causes the blood to spread over the surfaces of both glasses as a thin film. The glasses are immediately pulled apart, and after drying a few seconds in the air are placed in absolute alcohol three to five minutes, then washed in water, placed in suitable forceps and stained while wet with a few drops of Löffler's methylene blue. After staining a few seconds, wash again in water. Those specimens will be usually sufficiently stained that show a faint bluish color when the glass is held over a piece of white paper. Overstaining will stain the red blood-cells so deeply that the degenerative areas are not revealed. The cover-glass is now dried between blotting paper, and after drying passed rapidly several times through a flame. This heating causes the preparation to assume a light greenish tinge. It is then mounted in the usual way, and on microscopical examination one will find the nuclei of the leucocytes stained a deep blue, whereas their protoplasm has a bluish white, porcelain-like color. The red blood-cells, however, are stained a light green, and the granular degenerative areas when present stain bluish black, and stand out very clearly.

The author found these granular degenerative changes especially marked in cases of lead poisoning, and claims they are found in cases where no other evidence of lead poisoning exists. He believes that in those instances of lead intoxication in which the patient develops a deep coma and fails to show the presence of a lead line on the gums, etc., that the blood examination will reveal these degenerative changes in large numbers of the erythrocytes,

provided the condition was due to the action of lead. Beside this diagnostic value, he claims that the presence or absence, or more frequently, the diminution of such degenerative changes in blood after repeated blood examinations is of considerable prognostic value; for he always found that any general improvement in a case of lead poisoning or other disease associated with such changes in the blood the number of erythrocytes showing the granules of degeneration always diminished in a fairly fixed ratio to general improvement, often preceding it.

That these changes are apparently absent in syphilis is strange, but the author failed to find them in any of the twenty-four cases examined, the series including cases of primary, secondary and tertiary lues. We are not told whether any of these cases showed the so-called cachexia of syphilitic origin. It is of special interest that Hamel shows conclusively that the granular degeneration of the red blood-cells bears no relationship to morphological changes in the blood-cells. He therefore believes the changes are of a specific character, and probably due to a specific poison in the blood plasma.

* * *

Congenital Hypertrophy of the Pylorus. Geo. F. Still. *Trans. of the Pathological Society of London*, Vol. L, 1899.

Still reports three cases of well-marked hypertrophy of the pylorus occurring in young children. All the cases presented well-marked gastric symptoms, and in all the pylorus was readily palpable as a tumor mass during life. In two cases gastric peristalsis was noted. The article is also of special value, as it includes a series of measurements of the dimensions of the walls, and especially the pyloric region, of the normal infant's stomach. Still claims that but one author has previously reported on such measurements of the various layers of the normal infant's stomach, and this article is limited to measurements of one stomach.

Still found a considerable variation in the thickness of the wall of the normal pylorus of infants. He says: "It is by no means uncommon to find a pylorus considerably thicker and firmer than the average in cases where there has been nothing to suggest anything wrong with the stomach during life. Thus in one child aged five months the wall of the pylorus was 1.7 mm. thick, while in another of the same age it was 2.6 mm. thick. In one child of ten months the whole thickness was 2.4 mm.; in another at the same age it was 1.5 mm. thick. In view of this normal variation, it is evident that slight degrees of hypertrophy are very difficult to determine, and must be received with extreme caution."

A brief review of the clinical history and post-mortem findings of one of the cases reported in Still's article will be of sufficient interest to the reader:

Case 2.—Albert L., age fourteen weeks. Perfectly healthy till six weeks old. Before this there was not the slightest regurgitation of food. He then began to vomit, usually large quantities at intervals of several hours. Constipation was troublesome since

onset of vomiting. Breast feeding, with addition of some condensed milk, owing to large appetite, until eight weeks old; then various methods of feeding were tried, sometimes diminishing the vomiting for a time, but not permanently. The mother noticed peristalsis of child's stomach when he was three months old. On admission to hospital the child was much wasted, marked peristalsis, evidently of the stomach, visible in epigastrium. On the day before death the hard pylorus could be very distinctly felt in right hypochondrium. Temperature subnormal. There was daily vomiting. Death fifteen days after admission. Post-mortem. The stomach was dilated, and there was evident hypertrophy of its wall. The pylorus was markedly thickened, and almost cartilaginous to the touch. Circumference of pylorus 4.75 cm.; length, 2.5 cm. Its wall was 5 mm. thick, and the thickening was evidently muscular. Lumen patent, 3.5 mm. in diameter. No other congenital abnormalities except that the skull was markedly asymmetrical.

Society Reports.

THE CLINICAL SOCIETY OF MARYLAND.

MEETING HELD MAY 18, 1900.

THE meeting was called to order by the secretary, Dr. Reik, the president being absent, and, upon motion of Dr. Jacobs, Dr. Kierle was elected president *pro tem.*

The subject of discussion for the evening was "Congenital Cystic Kidneys," and the first case was reported by Dr. J. Whitridge Williams, as follows:

A CASE OF CONGENITAL CYSTIC KIDNEY, COMPLICATING THE BIRTH OF TWINS.

I have the pleasure of demonstrating before you this evening this specimen from a case which was of very considerable interest to me from several points of view. In the first place, it was of interest because of the fact that the fetus presented a large congenital cystic kidney, which, as you know, is a rather infrequent pathological finding; in the second place, the tumor was of such large size as to offer a very decided obstacle to the delivery of the child.

The patient was a young colored woman, who came to the Johns Hopkins Hospital in labor, and gave this history: She was twenty-six years old, and had previously had three spontaneous labors, the oldest child being six years old, the youngest three. All the children were perfectly formed, and there were no complications about the labors. She was just about at full term, and the pregnancy had been uneventful up to the last four months, during which time she had been suffering with more or less edema of the lower extremities. On examination we found a perfectly normal pelvis, but the uterus was very large, immensely distended, and reaching up to within two finger breadths of the ensiform cartilage. The

back of the child could be made out to the left, and the fetal heart was heard on the left side, just below the umbilicus, and was 160 to the minute. On vaginal examination we found the cervix completely dilated, and the foot and knee, together with the cord, projecting from the cervix. The cord showed a pulse of 162, corresponding very closely to the rate made out on abdominal auscultation.

As the cervix was completely dilated, and there was a breech presentation, with prolapsed cord, it was determined to deliver her at once. Chloroform was administered, and Dr. Dobbin, introducing his hand, seized both feet and brought them down. As soon as they were brought in sight we perceived that both were clubbed. Dr. Dobbin made considerable traction, and the child not coming, I aided him by pressure through the abdominal wall. As no progress was made, I thought there must be something wrong, and advised him to pass his hand up into the uterus. As he did so, he remarked that it seemed to be a very large child.

I then washed up and examined the woman myself, passing my hand well up into the uterus, and found to my surprise that the child's abdomen was dilated to quite the size of that of adult age. The lower part of this abdomen was filled with a tumor mass, and, diagnosing a kidney tumor, I remarked that there were two possibilities—either a congenital cystic kidney, or a sarcomatous kidney, but that I was rather inclined to consider it cystic.

It was impossible to deliver the child by ordinary methods, so I proposed to do an intrauterine nephrectomy. I introduced a pair of scissors, made an incision in the child's belly about 6 cm. long, and passing my finger through that, I could feel a hard, more or less nodular, tumor. With my finger I began to break down pieces of this tumor, and it proved to be a very difficult operation, as my hand soon became cramped. Dr. Dobbin then took a turn, and worked at it until he was tired, and then I began again, continuing in this way until we had removed 470 grammes of the tumor—something over a pound. The abdomen was collapsed somewhat now, so that I could pass a perforator up through the abdomen and puncture a part of the mass that felt soft, allowing about a pint of clear, yellowish fluid to make its escape. The child was now extracted without any great difficulty.

After extracting the child, I noticed that the woman's abdomen was still of considerable size, and when Dr. Dobbin introduced his hand again he found another bag of waters, which he ruptured, and, seizing a foot of a living female child, delivered her.

Before doing an autopsy on the first child we were struck by the immense size of the abdomen, and we found also that the posterior part of the skull was not well developed, and a large meningocele projected from the posterior fontanelle. There were sixteen teeth, not ossified, but distinctly marked off and cartilaginous in structure. Both hands were deformed, one having six fingers and the other seven. Both feet were clubbed in the varus position, and one foot had six and the other seven toes.

The portion of tumor remaining within the abdomen measured 16 by 13 by 6 cm., and weighed 720 grammes. Adding this to what was removed at the time of operation, we had a kidney of the left side that weighed

1190 grammes, or three and one-half pounds. When we went to look for the cystic structure that we had tapped we found that it was the right kidney, which, in a collapsed state, measured 13 by 7 by 4 cm., and had contained about a pint of fluid; the kidney tissue had entirely disappeared, and there was merely a hydro-nephritic sac. The specimen as you see it here gives an excellent idea of the size of the child and its general appearance. The other child was born alive, weighed about 2090 grammes, and was perfectly well developed.

This case was of very particular interest to me from a double standpoint. It was a very large abdominal tumor, and I do not know of a larger one on record in a new-born child. The woman made a very good recovery, and her temperature during the puerperium was never above 100°. I shall not go into details concerning the pathology of this case, because it is being worked up now by one of my assistants and will be published later. I brought, however, a piece of the congenitally cystic kidney for your inspection. The tumor is distinctly adenomatous in character, and I think we may consider that it is an adenoma of the kidney of a young child.

This is the second case of kidney tumor in a new-born child that I have had under observation, but the only one I have had an opportunity to work up personally. The other case occurred in my practice about three years ago. The woman was pregnant for the third time, and suffered very much during the latter months of pregnancy from a slight degree of hydramnios. She had a short labor, and an asphyxiated female child was born. While working over it for resuscitation I was struck by the size of the kidney region. As soon as the woman was cleaned up I told the husband of the condition of affairs, and we sent for Dr. Booker, who spent the night with the child. We had numerous consultations, and it was finally determined to operate. Careful measurements and the weight of the child was taken from time to time, and on the day before that set for the operation the child showed a gain of four ounces in weight, which decided us to postpone the operation. Later on the child was taken to New York, and while there was operated upon, and the tumor was found to be a sarcoma. The child made a good recovery, lived ten months, and died of some other trouble.

Dr. Winslow: In this first case, was there any urine in the bladder?

Dr. Williams: No; there was a kink in the ureter of the right kidney.

CONGENITAL CYSTIC KIDNEY IN THE ADULT.

Dr. Henry Barton Jacobs: This subject will be of increased interest at present, because we are able to see these specimens in connection with those just shown by Dr. Williams. The patient from whom my specimens were removed was a young unmarried woman, twenty-eight years old, who came of a very good family here in Maryland. Her father and mother lived to beyond middle life, one of them dying of dropsy. Her sisters and brothers are well, but one of the sisters has a history of having passed blood in her urine. The young woman never had any of the common children's diseases, no rheumatism, chorea, nor any of the infectious diseases, save possibly malaria while she was living on the Eastern Shore.

She had been perfectly well throughout her life up to the beginning of the present trouble, save for an occasional frontal headache, which she attributed to eye-strain. She had taken part in the games of children without breathlessness, always had a good appetite and digestion, and lived the life of a healthy and sound individual.

Her present illness began one year ago, when she noticed blood in the urine without any assignable cause. This condition lasted for about one week, but she had no pain or chills, and did not stop her work. There was no further trouble for nearly a year, when she had an attack of pain in the right side, coming on without any apparent cause. The pain was sharp, not colicky in character, but rather continuous. Her doctor thought that she was passing a gallstone. The urine was bloody, and remained so for two weeks. The frequency of micturition increased to about once every half-hour. She went to bed and remained there for three weeks, becoming weak from the loss of blood. Then she got up and was about again, feeling fairly well, although the pain in the right side recurred at frequent intervals. At the beginning of this attack, on the 6th of December, 1898, she noticed for the first time that the abdomen was distended, and it became impossible to fasten her waistband. The frequency of micturition also persisted, but there was no recurrence of the bloody urine.

On entrance to the hospital her appetite was good, and on examination she presented a healthy, well-nourished appearance, the skin slightly sallow and the mucous membranes pale. The pulse was 76, of good volume and slightly increased in tension. There was some enlargement of the heart, the second aortic sound sharply accentuated, and there was a slight murmur at the apex. The right flank was slightly fuller than the left, and the costal grooves were entirely obliterated. The abdomen was slightly fuller over the right than over the left side. The wall was soft and without tenderness. On the right side there were definite signs of resistence, which showed the presence of the deep mass. With one hand in the flank and the other over the abdomen the mass could be grasped. In the left flank a second mass could be made out, with nodular bodies on its surface. Both tumors became more palpable when the patient assumed a knee-chest position.

The patient staid in the hospital from the 11th of January until the 11th of February, 1899, and after the first few days she was up about the ward, and had no complaints save an occasional pain in the side. She was quite anemic, and the blood-count showed a reduced number of red cells and hemoglobin of 40 per cent. The urine was examined daily, and was always small in amount, with low specific gravity—between 1.007° and 1.008°. There was a slight trace of albumen, and on one occasion hyaline casts were seen. On one occasion, also, cholesterin crystals were found.

She went home, and nothing was heard of her during the following year. On the 27th of February, 1900, she returned in a condition of extreme dyspnea. Her friends related that she had remained perfectly well, that she had been at work during the year, although at times she passed bloody urine. At the time of entrance she could not speak above a

whisper, and had a great deal of difficulty in getting her breath. There seemed to be obstruction about the larynx. Cultures were made from the throat, but no bacilli found. Tracheotomy was performed and the tube inserted the next day, but respiration remained labored, although the tube seemed to be clear, and she slowly sank, dying on the first day of March. The urine during the last days in the hospital showed a specific gravity of 1.013°, with many red-blood cells, but no casts. The abdomen previous to death showed that the two tumors described above were still present, and the impression was that the left was perhaps a little larger than when seen before. The diagnosis of congenital cystic kidney had been made, and as such the case was shown by Dr. Osler at one of the hospital society meetings.

Not only is the case interesting in connection with Dr. Williams' case, but because the diagnosis of congenital cystic kidney was made during life. Cystic kidneys are not uncommonly found at autopsies, as there are some hundred or more in the literature, but it is not often that the diagnosis is made during life, and of all those that have been described probably not more than one in five has been discovered before death. These cases are usually considered as interstitial nephritis or they were not diagnosed at all. The autopsy in this case may be of some interest.

The left kidney measured 22.5 cm. long by 9.5 broad, and reached fully to the level of the sixth interspace, being also fairly adherent to the diaphragm. The pancreas was directly under it; the spleen above was not adherent, but consisted of a mass of cysts. The right kidney was about the same, but not so large. After removal the left kidney weighed 1400 grammes, its capsules stripped off with some difficulty, and the upper end of the kidney was formed of a very large cyst. The cysts of this kidney varied from the very large one, about three inches in diameter, down to cysts of pin-point size, only to be recognized under the microscope.

The cause of death was a laryngitis, the mucous membrane being edematous and swollen, and cultures showed colonies of staphylococci.

In considering the question of diagnosis of these cases you must consider as of importance the pain in the side and the bloody urine. Almost all the cases present those symptoms. Then on physical examination almost all cases have shown a slightly hypertrophied heart, with a high-tension pulse and sclerotic arteries. If, added to that, one may find tumors in either flank, he should be led to think of cystic kidney as well as the other forms of kidney trouble. If there are two tumors, cystic kidney should be thought of first, because most other kidney tumors are unilateral. In addition to the examination of the urine presenting symptoms of chronic interstitial nephritis, with blood corpuscles, the presence of cholesterin crystals makes the diagnosis almost certain. The cholesterin is formed in the contents of the cyst, and, if one of these ruptures, it is carried down into the urine.

Now, I should like to say a word about the pathology. This question is now under discussion. The early theories, of course, were that it was due to a blocking up of the flow of urine, and that these were retention cysts. That theory, I think, however, has been very largely abandoned. The second theory advanced was that they were embryonal in their origin; that the Wolfian body became mixed with the kidney tissue and produced

this cystic condition. Now the latest idea is, as Dr. Williams has suggested, that it is entirely a new growth; that it is an adenoma of some form. Another interesting point is that the cystic kidney of the fetus was not associated with the cystic kidney of the adult until comparatively recently. The first was thought to be congenital in origin, or due to intrauterine nephritis, and the infant not having sufficient renal tissue to live, died soon after birth, or was sacrificed at birth. On the other hand, the adult cases were considered to be merely a form of interstitial nephritis. Later writers, however, have joined the two together, and consider that the adult cases are the fetal cases, with sufficient renal tissue left to allow the patient to go on through the years, even to seventy or eighty years of age, as some cases have been discovered at autopsy as old as that.

Dr. Winslow: How much urine did that woman pass?

Dr. Jacobs: She was passing probably 800 or 900 c. c. per day.

The necessity of making a rather careful diagnosis in case of tumor of the flank is seen in the fact that there have been a number of these cases operated upon with the idea that there was a malignant growth of the kidney, or that it was an ovarian cyst. Some eminent surgeons have done this. The fact that one kidney is often larger than the other would lead one to overlook a small tumor. I think all agree that surgical treatment is not to be considered, and, as for medical treatment, give the treatment of chronic insterstitial nephritis. The small amount of renal tissue present to do the work must be considered, and the patient, of course, lightly fed and given a great deal of water to drink. Beyond this there is practically no treatment.

Dr. Winslow: I am sorry I had not heard Dr. Jacobs' address a year ago. About that time a lady was brought to me from North Carolina, twenty-three years of age, rather spare, who had been suffering with urinary troubles for some time and had had quite severe hematuria. She had pain in the left side and a large tumor—as large as the smaller of these two kidneys just shown. On the right side there was also a palpable kidney, but little if any enlarged. I did not recognize the character of the trouble at first, and thought I probably had to do with either a pus kidney or a cystic kidney, due to hydronephrosis, or due to the impaction of a calculus, and performed an operation. Upon cutting down upon the kidney it showed the appearance very similar to what is here exhibited, but as the kidney appeared to be totally disorganized I thought it would be as well out of her as in her, and so removed it. She had no trouble as a consequence of the operation, recovered, went home, and is living still in as good health or better, perhaps, than she was before. Now, I do not judge that removing that cystic kidney was extraordinary good surgery, but there is a case operated upon which I found to be a congenital cystic kidney and in which the patient did recover, and is living in better health. Perhaps if I had been as well informed on the question as I am now I should not have operated, although it was giving her a great deal of trouble, and as it was entirely degenerated I thought it as well to take it out as to leave it.

Dr. Keirle: I have some pathological specimens here showing several kinds of cystic kidneys, which I will pass around for observation.

Adjournment.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD MAY 21, 1900.

Dr. James Carroll of Washington reported three cases of gas bacillus infection. The first was a young woman admitted to the Columbia Hospital in labor, whose general condition was good immediately after delivery, but who rapidly developed signs of infection, and died within forty-seven hours, the second case was one of complicated gunshot fracture of the femur, and the third was a young woman who came to the hospital with history of a miscarriage a few days previously, which had been followed by a curetting of the uterus for retained placenta.

The autopsy findings in these cases were given in detail, together with a careful study of their bacteriology.

Dr. T. R. Brown read a paper on the "Bacteriology of the Infections of the Urinary Tracts in Women."

From the results of his work, which was most carefully conducted, the following conclusions might be deduced:

First, in all cases of infection of the bladder the cause of the cystitis is the introduction of micro-organisms into the bladder, usually by catheter, but also occasionally by blood or lymph currents from the rectum. In the great majority of cases, however, a certain amount of trauma of the bladder seems also necessary in order that infection may be set up.

Second, many of the signs of cystitis of a mild degree, pus cells in the urine, and a distinct reddening of the vesical trigonum (revealed by cystoscopic examination) may be caused entirely by hyperacidity of the urine, this apparently being in many cases one of the manifestations of hysteria or some form of neurosis.

Third, in the great majority of cases of acute cystitis in women the micro-organism causing the infection is one which either renders the urine more acid, or, at least, prevents its normal acidity, *i. e.*, micro-organisms which in their growth do not split up the urea.

Fourth, the commonest cause of acute cystitis in women is the colon bacillus, this being due probably in part to the short distance between the anus and the vulva, and in part to the short length of the urethra in women.

Fifth, in chronic cases, again, an acid urine was found in a great majority, and the colon bacillus was the most frequent cause.

As to pyelitis, it may be said that all cases are probably due to micro-organisms introduced either by an ascending infection from the urethra and bladder, or carried to the kidney by the blood or lymph currents. Second, while a diagnosis can be best made by renal catheterization, we can reach a very definite conclusion regarding the source of infection by a careful urinary examination, and especially from a comparison of the grade of the pyuria with the amount of albumen present—a marked discrepancy in favor of the latter, pointing almost certainly to the infection being renal. Third, in those cases in which the urine is acid the colon bacillus and the tubercle

are the most common provoking causes, while in the cases of alkaline pyelitis the bacillus proteus vulgaris is the commonest cause.

To be able to thoroughly understand the subjects of cystitis and pyelitis, to make a correct diagnosis, to inaugurate and carry out a rational line of treatment, and to give a correct prognosis, a careful clinical and bacteriological study of the urine is absolutely essential.

In discussion of this subject *Dr. Hugh H. Young* referred to some work of a similar character which he had been conducting upon male patients, and stated that he had found a much greater variety of organisms in his cases than those spoken of by Dr. Brown. The predominating cause, both in the acute and chronic cases in the male, seems to be the staphylococcus pyogenes albus.

Dr. Welch said he was rather impressed by the fact that the organisms mentioned, and which do so little harm elsewhere in the body, should produce so much disturbance in the bladder and the urinary tract. He believed it must be due to the nature of the trauma, or the very reduced powers of resistance on the part of the patients.

Dr. Guy Hunner said that the same point had occurred to him, but from a somewhat different standpoint, and he reported three cases of infection of the bladder and kidney by very large quantities of the streptococci, in none of which had the clinical disturbance been very marked.

AN ERROR.

Editor of the Maryland Medical Journal:

Please correct the error in my article on "Tuberculosis" in the January number. The interesting observations upon injections of the blood of immunized animals were made at the Loomis Sanitarium by Dr. J. E. Stubbert, not by Dr. Trudeau.

Very truly yours,

WM. ROYAL STOKES.

THE DESTRUCTION OF RATS BY MEANS OF AN INFECTIOUS DISEASE.

J. DANYSZ describes in *Annales de l'Institut Pasteur*, April, 1900, his experiments with a bacillus fatal to rats, but harmless to man and the domestic animals. This organism is grown upon agar, and being spread upon bread, and placed in situations frequented by rats, is eaten by them in preference to most other foods. The resulting sickness appears in a few days, is usually fatal, and is communicated to other rats, either directly by the dead bodies which are devoured, or through the medium of food or drink polluted by the sick rats. It is, of course, necessary to maintain a virulent organism, in order to apply this agent to the destruction of rats. Danysz finds that the organism can be raised to a high virulence by intraperitoneal cultivation in guinea-pigs. The rats which were subjected to this infection in Danysz's experiments were Rattus and Decumanus.

Book Reviews.

Tuberculosis: Its Nature, Prevention and Treatment. With Special Reference to the Open-air Treatment of Phthisis. By Alfred Hillier, B.A., M.D., C.M. With thirty-one illustrations and three colored plates. London: Cassell & Co., Limited; Baltimore: Medical & Standard Book Co., 3 West Saratoga street.

This excellent little book of 225 pages considers in eight chapters the following subjects: The Nature of Tuberculosis, the Clinical Forms of Tuberculosis, Transmission from Man to Man, Transmission from Animals to Man, Prevention in Every-day Life, Prevention by Legislation and Public Action, Treatment of Tuberculosis, National Movements Against Tuberculosis.

The seventh chapter, that on Treatment, is the longest in the book, and gives quite a full account of the open-air treatment. This chapter is also well illustrated. There is an appendix, reprinting five of the very good leaflets issued by the British National Association for the Prevention of Tuberculosis.

A Pocket Text-Book of Chemistry and Physics. By Walton Martin, M.D., and William H. Rockwell, Jr., A.B., M.D., of the College of Physicians and Surgeons, New York. In one 12mo. volume of 366 pages, with 137 illustrations. Just ready. Cloth, $1.50 net; flexible red leather, $2 net. Philadelphia and New York: Lea Bros. & Co.

This handy volume contains about all of the chemistry and physics which the medical student needs to know and much of what the practicing physician is likely to forget. The book belongs to Lea Brothers' series of Pocket Text-Books, and is as handsome and as good as its fellows.

Essentials of Diseases of the Skin, including the Syphiliodermata. Arranged in the form of Questions and Answers, prepared especially for Students of Medicine. By Henry W. Stetwagon, M.D., Ph.D. Fourth edition, revised and illustrated. Philadelphia: W. B. Saunders. 1899.

Essentials of Medical Chemistry, Organic and Inorganic. Prepared especially for Medical Students. By Lawrence Wolff, M.D. Fifth edition, thoroughly revised by Smith E. Jelliffe, M.D., Ph.D. Philadelphia: W. B. Saunders. 1899.

Essentials of Anatomy, including the Anatomy of the Viscera. Prepared especially for Students of Medicine. By Charles B. Nancrede, M.D. Sixth edition, thoroughly revised by Fred J. Brockway, M.D. Philadelphia: W. B. Saunders. 1899.

These three books belong to the well-known Quiz-Compend series of Saunders. They are arranged on the plan of questions and answers, and, being carefully revised at short intervals, are very good books of their class.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE JULY, 1900.

THE PLAGUE IN SAN FRANCISCO.

THE history of bubonic plague in San Francisco is well worth a brief review, as perhaps illustrating the reaction characteristic of an American community in the presence of this exotic pest.

On March 6 the dead body of a Chinaman, discovered in the shop of a Chinese undertaker, was reported to the health department by a police surgeon as suspicious of bubonic plague. On the 7th, Chinatown was cordoned, the street cars were forbidden to stop in that district, and the undertaker's shop and apartments were disinfected. Dr. Kinyoun of the United States Marine Hospital Service made a study of the pathological specimens, and offered the aid of the federal department to the local board of health. On the 11th the diagnosis was demonstrated.

Against the suspicion of plague the popular reaction had been manifested in noisy denunciations of the health officials by business men and newspapers. When the existence of plague was proved, the hostility increased and the uproar became general. On March 14 the Public Health Reports say, "A better feeling is prevailing." But on this date the local board of health was out of funds, and most of the officials were working gratuitously.

On March 19 two suspected cases (corpses again) were referred to Dr. Kinyoun, who was unable to confirm the diagnosis. There is nevertheless no reasonable doubt that they were plague. On April 26, fifty days after the recognition of the first case, another case was discovered, the diagnosis being verified by Dr. Kinyoun. May 13 two cases were reported. On May 15, 16 and 18, bodies dead of plague were discovered, bringing the number of demonstrated cases up to seven, or, including the two cases unconfirmed by the bacteriologist, a total of nine cases.

On the 19th of May, sixty-four days from the initial date, the local board of health announced the presence of plague in San Francisco, and called upon the State Board of Health for assistance. What pressure was exerted to prevent this announcement we shall perhaps know when plague appears nearer home. On May 22 the State Board of Health announced through the public press that there was no plague in San Francisco. Kinyoun had on the 15th reported to General Wyman that plague was epidemic, basing his opinion on the fact that no connection had been traced between any two cases.

House to house inspection was now undertaken, and Haffkine's prophylactic inoculation was offered to the residents of the infected quarter. An exodus was threatened, and it was attempted to make protective inoculation a condition of release from the quarantine. The Chinese consul-general and the Six Companies appeared to co-operate. The whites, however,

advised the Chinese to resist the health officers. The houses and stores were all closed, and it was found impossible to make a house-to-house inspection. Transportation companies were forbidden to sell tickets to Asiatics who had not health and vaccination certificates. Throughout this period every move on the part of the local board of health had been strenuously opposed by the local press.

On May 23 a suit was filed for injunction to restrain the local board of health and the United States Marine Hospital Service from enforcing the regulations affecting the liberty of inhabitants of the infected section. This suit was brought by the Chinese Six Companies. On May 28 a restraining order was granted on the grounds that the law of 1890 was an interstate regulation, and could not be applied to travel within the State; that such regulations could not lawfully be applied to Asiatics only; that the order did not declare plague to be present in San Francisco; and that the plague, if present, was unknown to the board of supervisors of the city. This removed all restraint from the denizens of Chinatown, and an exodus began. One railroad company, the Southern Pacific, refused transportation to the Chinese.

On May 29 the local board of health secured from the board of supervisors an ordinance declaring the existence of plague in the city, and reestablishing the cordon around Chinatown. On the 30th another corpse, dead of plague, was found, and on the 2d of June the number of cases had reached eleven. Surgeon Kinyoun's report of June 14 says that the Chinese are again trying to break the cordon both by injunction and habeas corpus proceedings. The board of health have assigned to the inspection of the Chinese quarter (25,000 inhabitants) ten inspectors and ten policemen. To accomplish this task with such a force is, as Dr. Kinyown says, "a physical impossibility." The water patrol is ineffective, for the reason that many of those who wish to escape by that route are able to outbid the authorities.

Summing up this story, the most salient feature is the fact that of the eleven cases of plague, not only were none discovered during life, but most of them were not found at the place of death. They were nearly all found by the police inspectors at undertakers' shops. Next, and a hardly less striking feature, is that, even by the employment of detectives, no two cases were shown to have been connected in any way. These circumstances are full of menace. Allied in a most positive manner to these dangerous conditions are the hostile newspapers and the business men. Negative contributions to the peril of the city have been made by at least one blunder of the State Board of Health, and by the ineffective, because resourceless, efforts of the local board. The local board seems to have kept steadily plying its futile equipment against the infection, and to have endured with remarkable fortitude the treacherous assaults upon its rear. The local health officials, no doubt, are wise in their generation, and know how much worse a flagellation will be administered by the same hands, if plague should make a daylight appearance.

Will the next American community attacked by plague react as San Francisco does? To this question we reply, rather diffidently, that every American city may be expected, during the insidious invasion of plague, to show symptoms of suicidal delirium.

THE CHARACTERISTICS OF A PLAGUE INVASION.

The characteristic of invading plague, which is at once most dangerous and almost constant, is its insidiousness. In whatever latitude the plague appears this quality of the disease is displayed. Weeks and months may pass before epidemic proportions are reached. Even where plague is familiar, the stealth of its progress, so Barker tells us, frequently betrays health officials into premature announcements that the disease has been stamped out. In this respect the invasion of plague is to epidemic plague about as a slow-burning fuse is to a charge of dynamite. Hasty action upon the belief that the fuse has gone out is extremely dangerous.

This unperceived progress suggests to the sceptical mind the existence of very mild unrecognized cases, and there are instances among recent epidemics which support this suspicion. In Hong-Kong cases of mild adenitis were observed for some time before the first case of plague was recognized, and it is probable that the wide distribution of the infection was accomplished through these cases. Fortunately, epidemics usually begin with cases showing the typical bubo, other varieties of the disease appearing later. In this form the diagnosis is easy, and it is well within the ability of American physicians to recognize it. If an outbreak should begin with pneumonic cases, the probability of correct diagnosis is small. The recent outbreak at Kolobovka in Russia was of this type, presenting twenty-four cases with twenty-three deaths, all of the pneumonic type.

The quality of insidiousness is probably due in most instances to the spread of plague by rats. Many histories of epidemics begin with a single case, or one infected house. Two or three weeks pass without any apparent spread. Then a commotion appears among the rats, dead bodies are found, and the rats disappear from the vicinity. Following this, human plague occurs, perhaps at several points distant from the original focus. Sometimes the behavior of the rats attracts no attention in the infected locality, nor is their migration observed. The earliest premonition of a plague visitation has sometimes been a notable increase in the number of rats, coming from none knows where. A recent outbreak in Bombay, and one in Calcutta, followed such a migration of rats.

Possessing routes of travel so well hidden from the eyes of men, and clinical disguises so baffling, plague may put physicians and health officers to confusion about as easily in our American cities as in the East. It is quite usual for those who write about plague to tell us that under the conditions of Western civilization plague will be easily controlled, and these views have a calming influence upon the popular mind. The hygienic condition of American cities and the habits of American citizens are probably not favorable to the spread of plague, but those of us who must bear the probable opprobrium of a first encounter will do well to examine whether our defenses are in fact as strong as they appear. No infected port is near enough to bring the time of transit to our shores within an incubation period of plague, and it is therefore unlikely that an unrecognized case in man will pass quarantine. But plague-infected rats on board ship might escape observation. The rules of the United States Marine Hospital Service do not require the examination of cargo for the bodies of dead rodents. This suggestion was made by the Oporto Plague Commission, and affords one more safeguard along that most obscure route of invasion.

Medical Items.

Prof. Tommasi Crudeli died at Rome on May 30.

Dr. Wm. H. Welch delivered the "Shattuck Lecture" in Boston on June 14.

Dr. John William Moore, editor of the *Dublin Journal of Medical Science*, has been knighted.

Dr. W. W. Keen has succeeded in raising $50,000 as a library fund for the College of Physicians of Philadelphia.

Dr. Howard P. Balliet, a young Philadelphia physician, was drowned while bathing at Atlantic City on June 25.

Dr. Lewis Stephen Pilcher, editor of *Annals of Surgery*, has received the degree of LL.D. from Dickinson College.

Dr. C. A. Wells of Hyattsville, Prince George county, is a candidate for the congressional nomination in his district.

At the May examinations of the State Licensing Board seventy-five men were licensed to practice medicine in Maryland.

Dr. James T. Whittaker, professor of medicine in the Ohio Medical College, died at his home in Cincinnati on June 5 of cancer.

Dr. John Morris has given up his house in Baltimore and gone to reside with his son, Dr. John N. Morris, at Sykesville, Carroll county.

Dr. Wilmer Brinton has resigned the chair of obstetrics in the Baltimore Medical College. He is succeeded by Dr. J. M. H. Rowland.

Dr. Chas. W. Mitchell has been elected to the chair of therapeutics in the University of Maryland to succeed Dr. I. E. Atkinson, resigned.

Dr. Paul Gibier of the New York Pasteur Institute was killed by being thrown from his carriage on June 9. Dr. Gibier had been in this country since 1888.

At the commencement of Johns Hopkins University on June 12 forty-three students received the degree of doctor of medicine. Dr. Wm. Osler delivered the address to the class.

Dr. Geo. W. Dobbin has been made professor of obstetrics in the College of Physicians and Surgeons. Dr. C. Hampson Jones becomes professor of hygiene in the same school.

Dr. Chas. H. Latimer of the class of '87, College of Physicians and Surgeons, has resigned his connection with the Government Hospital for the Insane to go to Manila to take charge of the insane among the United States troops.

Dr. Fessenden N. Otis, formerly professor of genito-urinary surgery in the College of Physicians and Surgeons, New York, died at New Orleans on May 24. Dr. Otis retired several years ago, and since then traveled extensively.

The two xiphopagous twins, Rosalina and Maria, have been successfully separated by Dr. Alvara Ramos of Rio Janeiro. A first operation for this purpose was made last winter, and was described in the *Medical News* of March 5. The bony structures were at that time divided, when shock compelled the operator to desist.

Governor Stanley of Kansas, a candidate for re-election, says that he will recommend that the State Board of Health be abolished, and that the office of Commissioner of Health be created in its place. What bearing this utterance may have upon his chances for re-election does not appear, but the governor no doubt believes that it will not be counted against him.

One of the co-operative insurance companies, the Knights of Honor, recently voted to exclude Christian Scientists and Faith Curists on the ground that they are bad risks. It does not seem likely that many companies will make the same discrimination, since but an infinitesimal part of the life insurance proposition rests upon the chance that a sick man will be cured.

According to the *Journal of the American Medical Association*, the city of Sassari, on the island of Sardinia, has been completely freed from mosquitoes. A chart was made showing every discoverable breeding place for mosquitoes, and these were all treated twice a month with coal oil. It is said that the entire cost for a city of 50,000 inhabitants should be about $250, or $5 per 1000. Cheap enough.

THE *Alabama Medical and Surgical Age* comes out under a new name—the *Alabama Medical Journal.*

DR. LOUISE HOLMES has been appointed assistant physician to the Springfield Hospital for the Insane at Sykesville. Dr. Holmes will have charge of the new group of buildings for female patients. This department is now about ready to receive patients.

DR. W. S. CHRISTOPHER'S plan of making physical tests of applicants for admission to the Normal School is to be tried in Chicago. Drs. Julia Smith, Sarah Stevenson, and Sarah Hackett have been appointed to conduct these examinations. Dr. Christopher believes that the physical unfitness of teachers is a great fault in public education, and that the remedy is to be found in physical examination of those who seek entrance to training schools for teachers.

THE patronage of the Walters Public Baths has far exceeded the anticipations of the Public Baths Commission. On the Friday following their opening 608 persons were bathed. The indications are clear that the accommodations are not half adequate for the needs of the locality. The commission has endeavored to increase the facilities by lengthening the hours and adding to the number of attendants. Negotiations are pending for a site for a similar building in Southwest Baltimore.

ACCORDING to the *Medical Record* the Cook County (Ill.) Anti-Cigarette League had a field day on June 15, and among the events was a 50-yard dash. A newsboy with a cigarette in his mouth asked permission to enter for this race. There were, of course, no smokers entered, but the superintendent could not withstand the temptation to admit this little "fiend" for the sake of seeing him distanced. It would have worked nicely if the boys could have run faster than the "fiend," but they couldn't, or didn't.

DR. E. O. SHAKESPEARE died suddenly of heart disease in Philadelphia on June 1. Besides having acquired rank among the ophthalmic surgeons of the country, Dr. Shakespeare was well known as a pathologist, and was an authority on Asiatic cholera, having visited Europe and India in 1885 as special commissioner of the United States to study that disease. At the time of his death he was a member of the surgeon-general's commission to investigate the causes of typhoid fever in the United States army.

A MAN who has escaped the hands of the law after several charges of criminal abortion has been twice convicted upon the latest indictment found against him, and is sentenced to 10 years in the Penitentiary. The case will go to the Court of Appeals, a third trial having been refused. If the accused escapes, his nefarious business will have been better advertised by the last than by any previous trial. It would be interesting if this man would leave us as a parting legacy his observations concerning the effects of criminal prosecution upon his professional income. The direct tax must be very heavy.

THE Supreme Court of New York has awarded $10,000 damages to Miss Ward for injuries sustained at the hands of a pupil-nurse in St. Vincent's Hospital. Miss Ward was a pay patient, and had engaged a special nurse at $3 per day. While she was under ether, a hot-water bottle, unprotected, was placed against Miss Ward's leg, inflicting a disabling burn. In the first trial the verdict was against the plaintiff, but the Appellate Court decided that a contract had been made with Miss Ward, and that damages were due for injury resulting from breach of contract in the act of the pupil-nurse.

THE entertainments offered to members of the International Medical Congress will be as follows: On August 2, the day of opening, an evening fête given by the president of the Council in the name of the government; on August 3 an evening entertainment by the president of the Congress; on August 5 a reception to the Congress by the President of the Republic in the Palais de l'Elysée; on August 8 a fête in the Palais du Sénat and the Garden of the Luxembourg given by the bureau and the committee of organization. Besides these there will be the dinners of most of the sections. Women will be invited to all of these entertainments. A committee of women has been organized for the reception of the women accompanying members of the Congress.

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TENDENCIES IN MEDICINE IN THE TWENTIETH CENTURY.

By John C. Hemmeter, M.D., Phil.D., etc.,

Professor in the Medical Department of the University of Maryland and Director of the Clinical Laboratory.

READ BEFORE THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, TUESDAY, APRIL 24, 1900.

Clinical and scientific investigations are not calculated to develop the gift of rhetoric nor the esthetics of expression. Boerhave, one of the older German clinicians, who was born in 1668, is the author of the motto "*Simplex sigillum veri,*" and scientific men, conscious of the power of truth, are gradually coming into the manner of stating it in the simplest possible manner. And modesty is a characteristic of their delivery; oratory and science do not go hand in hand. The brain gravid with facts is in its expressions simple, modest and sweet, except in rare instances where great emphasis requires force of statement. Gaze upon the ears of growing wheat—those that contain no fruit raise their heads proudly above the field, but lowly and modest do those bow to the earth that are heavily laden with seed.

Tyndall once compared this to certain crystals of fluor-spar, which, having lain in the depths of the earth darkly hidden for ages, reflect no light, are not fluorescent, but nevertheless have a potency of light locked up within them. The light in the crystals is held by a peculiar molecular structure, a detent, but when these crystals are heated the detent is lifted and an outflow of light at once begins.

Some similar check or inhibition is lifted from me whenever I address physicians. The crystal when warmed by social congeniality begins to show light, though encumbered by a molecular detent imposed by habit and the doctrine of Boerhave, "*Simplex sigillum veri.*"

This evening, as I followed the massive and subtle "motives" of the Tannhauser overture, as I had followed them many times before, the idea came to me that to a musically-trained mind it

should not have been difficult to foretell at the time when Wagner first brought out his unique and original compositions that in them there was contained a genius that must serve in future as a beacon light for other composers; and indeed at the very time of the first production of "Tannhauser" certain German musicians, gifted with acuteness of vision, applied to it the designation of "Music of the Future." How true this prediction of Liszt has come to be may be well known to you from the fact that today it is considered the highest ideal of dramatic music. But to reach this ideal Wagner did not confine himself strictly to the effects of music pure and simple, but he called to his aid other arts, and in his work we find a classical combination of poetry, the drama, painting, and music.

Not only was it possible for minds musically trained to foretell that this talented composer represented a type to be imitated for future ages and new tendencies, but by the highly artistic combination and elaboration of what were called musical motives it was in many instances possible to foretell in the beginning or first act of one of his operas the manner in which the various themes would be utilized in the climax.

In medicine, as in music, it is sometimes possible to foretell coming events, not by any extraordinary acuteness of vision or prescience, but by following the tracks of facts already established and observing their direction out into the unknown domain and hazy territory of the times that are coming. As Juvenal said, "*Nequeo monstrare, et sentio tantum*" ("I cannot embody it in words, but can feel it in my soul"). The statements which may be made concerning the future development of our science are not based on experimental evidence entirely, but are advanced from the psychic conviction that certain things, facts and conditions, which are not now, certainly must eventually be. To begin with the better beaten road of established facts would compel me to refer, though briefly, to that which has been accomplished in this present century, not only in medicine, but in other natural sciences, for the coming progress of medicine will be associated with the progress that is made in other natural sciences, especially physics, chemistry and physiology. Evidently it will be impossible to even outline the tremendous amount of work that has been accomplished during these past 100 years in these domains of knowledge. Under chemistry I should have to refer to the life and work of John Dalton, Johan Jakob Berzelius, Joseph Louis Gay-Lussac, Justus von Liebig, Gustav Robert Kirchhoff, Robert Wilhelm Bunsen, Louis Jacques Maude Daguerre, and John W. Draper. Under physics, to Thomas Young, Michael Farraday, Hans Christian Oersted, Arago, Fresnel Julius Robert Meyer, Jas. Prescott Joules, Sir William Thompson (Lord Kelvin), John Tyndall, Jas. Clerk Maxwell, and Helmholtz. In anatomy and physiology I should have to mention the epoch-making work of Karl Ernst von Baer, William Hyde Wollaston, Matthias Jakob Schleiden, Marie Francois Xavier Bichat, Jean Baptiste Dumas, Claude Bernard, William

Benjamin Carpenter, Hugo von Mohl, Johannes Müller, and Max Schultze. To give the century's progress in biology it would be our duty to speak of Erasmus Darwin, Jean Baptiste de Lamarck, Etienne Geoffrey Saint-Hilaire, Charles Robert Darwin, Alfred Russell Wallace, Thomas Henry Huxley, Asa Gray, and Ernst Heinrich Haeckel.

A glance into the future should reasonably be preceded by a glance into the past.

For the historical references in this essay I am indebted to the articles by Dr. Henry Smith Williams, in *Harper's Monthly Magazine*, 1897, from which the following account of the discovery of auscultation, percussion and anesthesia have been taken.

Two French monarchs have been instruments, unwillingly perhaps, for the advance of medicine. One was Charles IX, who, in proclaiming that all Protestants in France should be put to death on St. Bartholomew's day, made a single exception, that of Ambrose Paré, the father of French surgery. It is probable that this was done from purely selfish motives, for in Paré he preserved the healer of his army's wounds.

Although Napoleon Bonaparte, First Consul, was not lacking in self-appreciation, he probably did not realize that in selecting a physician for his own needs he was markedly influencing the progress of medical science as a whole. Yet so strangely are cause and effect adjusted in human affairs that this simple act of the First Consul had that very unexpected effect, for the man chosen by the envoy of a new method in medical practice, and the fame which came to him through being physician to the First Consul, and subsequently to the Emperor, enabled him to promulgate the practice in a way otherwise impracticable. Hence the indirect but telling value to medical science of Napoleon's selection.

The physician in question was Jean Nicolas de Corvisart. His novel method was nothing more startling than the now familiar procedure of tapping the chest of a patient to elicit sounds indicative of diseased tissues within. At the beginning of the century Corvisart, and perhaps some of his pupils, were probably the only physicians in the world who resorted to this simple and useful procedure. Hence Napoleon's surprise when, on calling in Corvisart, after becoming somewhat dissatisfied with his other physicians, Pinel and Portal, his physical condition was interrogated in this strange manner. With characteristic shrewdness Bonaparte saw the utility of the method, and the physician who thus attempted to substitute scientific method for guesswork in the diagnosis of disease at once found favor in his eyes, and was installed as his regular medical adviser. (Henry Smith Williams, *Harper's Monthly Magazine*, 1897.)

For fifteen years before this Corvisart had practiced percussion, as the chest-tapping method is called, without succeeding in convincing the profession of its value. The method itself, it should be added, had not originated with Corvisart, nor did the French phy-

sician for a moment claim it as his own. The true originator of the practice was the German physician Avenbrugger, who published a book about it as early as 1761. This book had even been translated into French, then the language of international communication everywhere, by Rozière de la Chassagne of Montpelier in 1770, but no one other than Corvisart appears to have paid any attention to either original or translation. It was far otherwise, however, when Corvisart translated Avenbrugger's work anew, with important additions of his own, in 1808. By this time a reaction had set in against metaphysical methods in medicine that had previously been so alluring. The scientific spirit of the time was making itself felt in medical practice, and this, combined with Corvisart's fame, brought the method of percussion into immediate and well-deserved popularity. Thus was laid the foundation of so-called physical diagnosis, which is one of the cornerstones of modern medicine.

The method of physical diagnosis as practiced in our day was by no means completed, however, with the work of Corvisart. Percussion alone tells much less than half the story that may be elicited from the organs of the chest by proper interrogation. The remainder of the story can only be learned by applying the ear itself to the chest, directly or indirectly. Simple as this seems, no one thought of practicing it for some years after Corvisart had shown the value of percussion. Then, in 1815, another Paris physician, Réne Théophile Hyacinthe Laënnec, discovered almost by accident that the sound of the heart-beat could be heard surprisingly through a cylinder of paper held to the ear and against the patient's chest. Acting on the hint thus received, Laënnec substituted a hollow cylinder of wood for the paper, and found himself provided with an instrument through which not merely heart-sounds, but murmurs of the lungs in respiration could be heard with almost startling distinctness. (Henry Smith Williams, M.D., *l. c.*)

The possibility of associating the varying chest sounds with diseased conditions of the organs within appealed to the fertile mind of Laënnec as opening new vistas in therapeutics, which he determinted to enter to the fullest extent practicable. His connection with the hospitals of Paris gave him full opportunity in this direction, and his labors of the next few years served not merely to establish the value of the new method as an aid to diagnosis, but laid the foundations also for the science of morbid anatomy. In 1819 Laënnec published the results of his labors in a work called "Traité d'Auscultation Médiate," a work which forms one of the landmarks of scientific medicine. By mediate auscultation is meant, of course, the interrogation of the chest with the aid of the little instrument already referred to, an instrument which its originator thought hardly worth naming until various barbarous appellations were applied to it by others, after which Laënnec decided to call it the stethoscope, a name which it has ever since retained.

In subsequent years the form of the stethoscope, as usually employed, was modified, and its value augmented by a binauricular attachment, and in very recent years a further improvement has been made through application of the principle of the telephone; but the essentials of auscultation with the stethoscope were established in much detail by Laënnec, and the honor must always be his of thus taking one of the longest single steps by which practical medicine has in our century acquired the right to be considered a rational science.

Laënnec's efforts cost him his life, for he died in 1826 of a lung disease acquired in the course of his hospital practice, but even before this his fame was universal, and the value of his method had been recognized all over the world. Not long after, in 1828, yet another French physician, Piorry, perfected the method of percussion by introducing the custom of tapping, not the chest directly, but the finger or a small metal or rubber plate held against the chest—mediate percussion, in short. This perfected the methods of physical diagnosis of diseases of the chest in all essentials, and from that day till this percussion and auscultation have held an unquestioned place in the regular armamentarium of the physician.

Meantime, in quite another field of medicine, events were developing which led presently to a revelation of greater immediate importance than any other discovery that had come in the century perhaps in any field of science whatever. This was the discovery of the pain-dispelling power of the vapor of sulphuric ether, inhaled by a patient undergoing a surgical operation. This discovery came solely out of America, and it stands curiously isolated, since apparently no minds in any other country were trending toward it even vaguely. Davy, in England, had indeed originated the method of medication by inhalation, and carried out some most interesting experiments fifty years earlier, and it was doubtless his experiments with nitrous oxide gas that gave the clew to one of the American investigators; but this was the sole contribution of preceding generations to the subject, and since the beginning of the century, when Davy turned his attention to other matters, no one had made the slightest advance along the same line until an American dentist renewed the investigation. Moreover, there had been nothing in Davy's experiments to lead anyone to suspect the possibility that a surgical operation might be rendered painless in this way, and, indeed, the surgeons of Europe had acknowledged with one accord that all hopes of finding a means to secure this most desirable end must be utterly abandoned—that the surgeon's knife must ever remain a synonym for slow and indescribable torture. By an odd coincidence, it chanced that Sir Benjamin Brodie, the acknowledged leader of English surgeons, had publicly expressed this as his deliberate though regretted opinion at a time when the quest which he considered futile had already led to the most brilliant success in America, and while the

announcement of the discovery, which then had no transatlantic cable to convey it, was actually on its way to the Old World.

The American dentist just referred to, who was, with one exception to be noted presently, the first man in the world to conceive that the administration of a definite drug might render a surgical operation painless, and to give the belief application, was Dr. Charles W. Wells of Hartford, Conn. The drug with which he operated was nitrous oxide; the operation which he rendered painless was no more important than the extraction of a tooth, yet it sufficed to mark a principle. The year of the experiment was 1844.

The experiments of Dr. Wells, however, though important, were not sufficiently demonstrative to bring the matter prominently to the attention of the medical world. The drug with which he experimented proved not always reliable, and he himself seems ultimately to have given the matter up, or at least to have relaxed his efforts. But meantime a friend to whom he had communicated his belief and expectations took the matter up, and with unremitting zeal carried forward experiments that were destined to lead to more tangible results. This friend was another dentist, Dr. William J. Morton of Boston, then a young man, full of youthful energy and enthusiasm. He seems to have felt that the drug with which Wells had experimented was not the most practicable one for the purpose, and so for several months he experimented with other allied drugs, until finally he hit upon sulphuric ether, and with this was able to make experiments upon animals, and then upon patients in the dental chair that seemed to him absolutely demonstrative.

Full of eager enthusiasm, and absolutely confident of his results, he at once went to Dr. J. C. Warren, one of the foremost surgeons of Boston, and asked permission to test his discovery decisively on one of the patients at the Boston Hospital during a severe operation. The request was granted; the test was made in September, 1846, in the presence of several of the foremost surgeons of the city and a body of medical students. The patient slept quietly while the surgeon's knife was plied, and awoke to astonished comprehension that the ordeal was over. The impossible, the miraculous, had been accomplished.

Swiftly as steam could carry it—slowly enough we should think today—the news was heralded to all the world. It was received in Europe with incredulity, which vanished before repeated experiments. Surgeons were loath to believe that ether, a drug that had long held a subordinate place in the armamentarium of the physician, could accomplish such a miracle. But skepticism vanished before the tests which any surgeon might make, and which surgeons all over the world did make within the next few weeks. Then there came a lingering outcry from a few surgeons, notably some of the Parisians, that the shock of pain was beneficial to the patient; hence that anesthesia—as Dr. Oliver Wendell Holmes had christened the new method—was a procedure not to be advised. Then, too, there came a hue and cry from many a pulpit that pain was

God-given, and hence, on moral grounds, to be clung to rather than renounced. But the outcry of the antediluvians of both hospital and pulpit quickly received its quietus, for soon it was clear that the patient who did not suffer the shock of pain during an operation rallied better than the one who did so suffer, while all humanity outside the pulpit cried shame to the spirit that would doom mankind to suffer needless agony. And so within a few months after that initial operation at the Boston Hospital in 1846 ether had made good its conquest through the civilized world. Only by the most active use of the imagination can we of this present day realize the full meaning of that victory.

Imagine the state of mind of our medical brethren at the beginning of this century, in the year 1800. Imagine the question put to them, "What will be the tendencies of medicine in the nineteenth century?" Ignorant as they were as to the nature and cause of infectious diseases, could they possibly have foretold the coming era of revelation and evolution that medical science would, in the century at whose threshold they stood, explain the causes of diphtheria, typhoid fever, tuberculosis, hydrophobia, tetanus, cholera, and even discover the means of curing many of them? Would they have believed it possible that, by means of a new manifestation of energy, the interior of opaque bodies could be made visible to the human eye? One had only to look into a tube containing a screen of certain composition, and direct it toward a peculiar electrical apparatus, to acquire clairvoyant vision. More wonderful than the discredited second-sight of a medium, that the bones of the human frame would stand revealed in their weird simplicity, as if the living, palpitating flesh about them were but the shadowy substance of a ghost. And yet the standard of the medical mind at the beginning of the century was high, and looked forward into the coming century with high expectations. Speaking of our latter-day preventive inoculation, remember that the anno 1800 physician had seen Jenner vaccinate successfully for smallpox in 1796. And speaking of our latter-day *x*-ray photography, had not Thos. Wedgwood and Humphrey Davy in 1801 proven that it was possible to secure the imprint of a translucent body upon a chemically-prepared plate by exposure to sunlight? In this way translucent pictures were copied and skeletal imprints were secured of living insects and plants which bore a striking resemblance to the shadowgraphs of more opaque objects which we secure by means of the new photography of today. This makes it conceivable that the imprints of Humphrey Davy and Thos. Wedgwood were in reality modified skiographs or shadowgraphs. Already the suggestion has been thrown out that rays in every particular analogous to the Roentgen or *x*-rays are contained in sunlight, together with an abundance of rays of other qualities.

In an article on "The Therapeutic Value of Solar Rays," *Philadelphia Medical Journal*, Vol. I, p. 175, Albert Abrams gives experimental evidence of the penetrating, actinic action of solar rays on solio paper after the rays had traversed the skin, muscles and

other tissues of the thorax of a rabbit. In another article, *Philadelphia Medical Journal*, Vol. IV, p. 655, Valdemar Bie of Copenhagen brings together the facts attributing to the sun's rays certain indubitable bacteriocidal properties. The successful treatment of lupus vulgaris is there illustrated under the influence of sun rays. What will be the development of the *x*-ray method for diagnostic purposes in the coming century? As yet we can use it with exactness only concerning conditions of bones. The states of the heart and kidneys can occasionally be ascertained with limited exactness. Renal calculi are in some cases capable of localization, but the condition of the other tissues, particularly muscles, blood-vessels, nerves, cannot be recognized by this method. One of the first additions to our knowledge which the future will bring to us is that we will be able to recognize conditions of the blood-vessels, or at least their location, by means of the *x*-rays. In his original report, Roentgen stated that the new rays named after him were not only cut off by metals, but by the salts of metals, not only by iron and zinc, but by chloride of iron and sulphate of zinc. As the blood-vessels contain normally a compound of iron, it is reasonable to presume that they should cast a shadow upon the fluoroscope. The reasons why these shadows are not visible to our eye are to be sought either in the power of the *x*-ray apparatus, or in the amount of iron in the blood-vessel itself, which may be insufficient to cut off the rays. The next step in this investigation will be either to increase the penetrating power of the ray, or to increase the amount of iron in the blood-vessels, at first perhaps only in localized areas, those concerning which we desire information. A recent examination of photographic plates gained by the new photography after very long exposure and careful and special development has led me to suspect that the large blood-vessels are already photographed on most of our plates, but are invisible to us from lack of proper development. I mean in this case the chemical development of the plate by means of reagents. So the next advance which we may look forward to is the recognition of the condition of the blood-vessels in the plates gained from *x*-ray photography. Many of the blood-vessels are invisible in photographs of this character, because they are concealed by overlying bones. I do not attempt to cast the horoscope for the new photography. My object at present is reminiscent, not prophetic. It is of interest to recall what knowledge of sciences men had in the days when Wedgwood and Davy, a hundred years ago, photographed with the sun's rays through organic bodies. In order to inquire what is the horizon of a person standing at the threshold of our own century, we must be reminded of the chief scientific legacies of that century to its successor, in order to become more accurately aware of the tendencies of our own mind. What will the future bring in the line of treatment and prophylaxis? There will be no doubt State care of congenital invalids of many kinds, State control of the marriage of individuals affected with diseases of which it can be established that they are propagated by inheritance.

New diseases, hitherto unknown, will inevitably originate from the new industries using tremendous potential energies in electricity, magnetism, light, heat and water-power. New diseases will originate from new industries utilizing chemicals that exert a detrimental influence upon the tissues of the body. New neuroses will originate from the widespread use of electricity, and the almost unavoidable increase of mental pressure, work, responsibility, and from the accompanying neglect of hygienic and dietetic rules. Medical men must raise their voices against the crowding together of human beings in gigantic cities, which must lead to self-destruction. Man is a pastoral animal. The normal human life, like that of the patriarchs, is existence in the country under agricultural occupations; State or government laboratories to study the physiological and pathological effects of food, not only with regard to heat-producing, force-producing and tissue-building effect, but with regard to the influence of psychic functions on the production of possible pathological conditions.

The architecture of private dwellings will provide a special sick-room in each house, similar to the aseptic rooms in first-class hospitals; subdivision of labor among practitioners of medicine; necessity for a more detailed practice; fewer cases, but much higher fees—these will be unavoidable because of the time-robbing analytical and microtechnical work that medical cases require, and which can only be executed in clinical, chemical laboratories.

Considering the enormous and alarming increase of malignant diseases, brings forward the only treatment which has hitherto been of any practical value for such cases, that is, the treatment by surgical operation. I did not intend to consider the prospects of operative surgery in my present paper, but as I have had considerable experience with the results of operative treatment of gastric malignant tumors, I may state my views briefly concerning operative treatment of such diseases of the stomach. In my opinion operative surgery of gastric diseases has almost reached the limit of its development. It stands arrested in front of the natural borders of internal medicine. These are the fundamental pillars of pathology. I am impressed with what appears to be only symptomatic improvement of gastric surgery, for 99 per cent. of all cases of gastric carcinoma that come to operation die of a return of the disease if they survive the immediate results of the operation. The truth must impress itself forcibly upon medical men that surgery cannot be the treatment of the future for carcinoma. In all countries where there are universities and hospitals, medical philosophers, histologists, bacteriologists and chemists are working toward the cause and nature of malignant neoplasms, and the first half of the present century will see the nature of these growths explained, just as tubercule, tetanus and diphtheria have been explained to us, and then will come a logical and effective treatment, based upon a knowledge of the truth concerning this dreadful disease—a treatment under which the malignant growth will melt

away, let us hope, like the pseudo-membrane melts away under the influence of the diphtheria antitoxin.

Will we ever be able to understand and successfully treat all diseases that human flesh is subject to? It is doubtful, for in the very time that we are engaged in solving the problem of the most prominent diseases of one period our new habits of life, new industries, the crowding together of human beings, exhaustion of certain food supplies are originating other diseases, and for all that can be told the end of the next century will confront the medical man of that day with abnormalities baffling to him and beyond our present comprehension. Thus again, renewing his missionary work to heal and to cure, his motto will be "*Nec aspera terrent.*"

RETINITIS ALBUMINURICA.

REPORT OF UNUSUAL CASES.

By James J. Mills, M.D.,

Baltimore.

READ BEFORE THE OPHTHALMOLOGICAL SOCIETY OF MARYLAND.

RETINITIS albuminurica occurs chiefly in the chronic form of kidney disease, but also occurs during the albuminuria of pregnancy, after scarlet fever, diphtheria, and occasionally after measles.

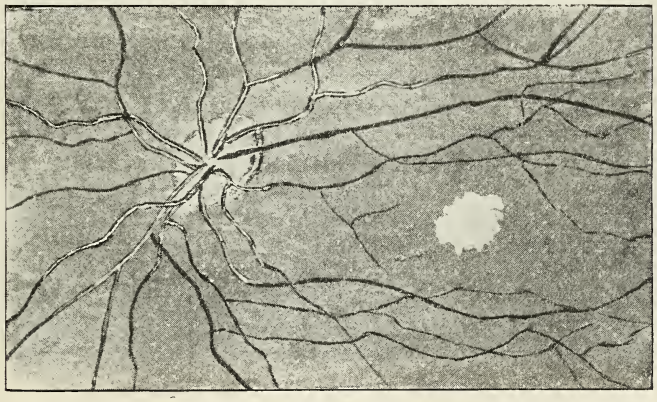
It may develop with any of the forms of kidney lesion. Hypertrophy of the heart often coexists, but is not essential to the retinal complication. The retinal affection usually appears when renal symptoms have been fully declared, and it is also, in a marked number of cases, the first symptom to attract attention. Uremic symptoms, such as headache, morning nausea or vomiting, palpitation with frequent micturition, especially at night, may have existed, or sometimes even these symptoms have not been present.

The severity of the local changes varies greatly, while in rare cases there is uremic blindness or amblyopia, without visible fundus changes. My experience has been that the macula region shows changes more frequently than the optic nerve. Again, we often find the nerve implicated, and the retina scarcely at all. Often both are involved. Most writers agree that it is exceptional to have one eye alone involved, though we often find one eye more affected than the other. It is said that faintly-diffused opacity about the center of the fundus and some redness of the nerve have been seen as the earliest evidences of the disease.

We also find changes affecting the retinal vessels, which are most noticeable in the arteries. These may be easily overlooked unless careful ophthalmoscopic examination is made. Some years ago Gowen described a notable diminution in the size of the retinal arteries, in some cases of chronic renal disease, especially of the granular form. The veins are unaltered in size, but the ar-

teries may be reduced to half their usual breadth or less. This diminution in the size of the retinal arteries is coincident with a pulse of high tension. These statements have been confirmed by Marcus Gunn, who has published a paper on the results of his observations of the retinal vessels in cases of chronic albuminuria and other conditions in which arterial degeneration occurs. The abnormal appearances in the retinal vessels, associated with signs of increased arterial tension, are indicative of widespread sclerosis of arteries, such as is so frequently present in subjects of granular kidney. Alteration in the retinal arteries, indicative of sclerosis of their coats, are commonly seen as part of albuminuric retinitis. In many cases the thickening of the arterial wall and narrowing of the blood stream is very obvious.

The following are a few interesting cases of changes in the retina in renal disease which are sufficiently rare to be worth reporting. I must apologize for the brevity of their history, as only one opportunity was afforded me of seeing two of the cases:



I. Charles B.

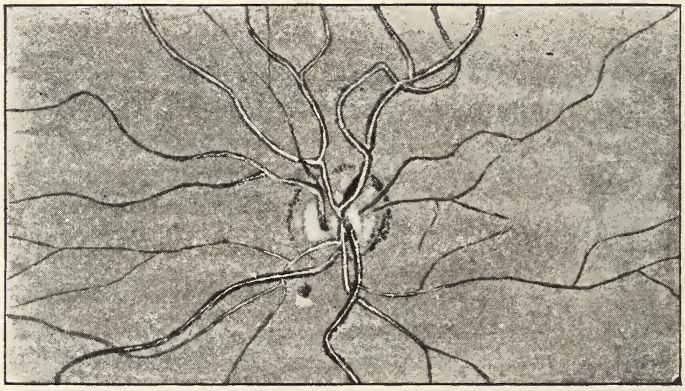
I. Charles B., a stout-looking boy of nineteen, was sent to the dispensary to me with a note from his physician requesting me to examine him for glasses, as he was suffering from severe headaches, which were believed to proceed from an error of refraction. Two years before I saw him he had noticed the vision in his left eye had become defective. He had been to an optician for this, and had been furnished with glasses. He had not complained of nausea—only of severe headaches—and no suspicion of kidney trouble had existed in the minds of his physician or family.

Plate No. I will show a drawing I made at the time of ophthalmoscopic examination of left fundus. The large white patch of degeneration will be observed in the macula region. Otherwise there were no retinal changes noticeable. The right fundus was in every particular normal, and V = 18/15 nearly. I notified his family physician, and requested him to bring me a specimen of his

urine for examination. Instead of this I received a letter informing me that he had made the examination, and found albumen in great quantity. I have since heard that the boy died five months after his visit to me. The family could offer no history to throw any light upon the possible cause of the disease.

This case is interesting from three standpoints: 1st, the fact of only one retina being affected, which is most rare; 2d, that the eyes first called attention to the kidneys; 3d, the youth of the patient.

II. Mr. C., aged twenty-seven, a student in a college some distance from the city, was sent to me for the purpose of having his glasses changed. He had suffered with headaches a year since, but recently had not complained. My book notes show the following: Insufficiency of right internal rectus muscle, the result of tenotomy for convergent strabismus when seven years of age. He cannot always maintain binocular fixation, and when fatigued has diplopia.

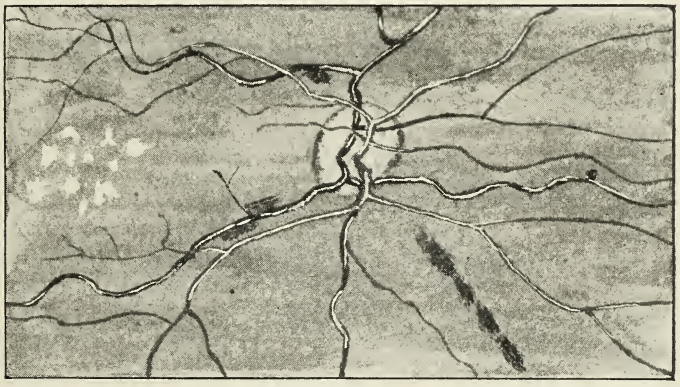


II. Mr. C.

Plate No. II will show a sketch of the right fundus drawn by me at this sitting. It will be noticed that with the exception of a very small hemorrhage, and smaller white patch just above the nerve head, the fundus appears normal. The left retina at this time showed no changes. With the correction of his refraction, for which he is wearing glasses, his V = 20/20 in each eye, separately tested. As he was leaving town at noon, I tested his urine, and found sp. gr. 1010. Upon boiling and treating with nitric acid, albumen was found in great abundance, and after settling quite half the bulk was albumen. I informed the head of his college of his serious condition, and have since heard that on account of his health he has been unable to continue his studies.

This case is also interesting from the fact that the asthenopic symptoms led to the ophthalmoscopic examination, and this in turn to the discovery of kidney trouble, where none had been suspected. No history to throw light upon the cause of the kidney disease was obtainable.

III. Mrs. S., aged seventy-six, whilst shopping, was seized with vertigo (two weeks before she consulted me), and says that after recovery from the attack she saw objects doubled. Upon examination she showed paralysis of the right external rectus muscle, producing marked convergent strabismus. Owing to the diplopia she was unable to walk unaided. Micturition was very frequent during the early morning hours for the last two months. Has not complained of nausea. Always had good health before, but now complains of shortness of breath. Has had rheumatism slightly during past two winters. She came to me on account of failing vision in the right eye and the diplopia, which, as stated, came on suddenly, and had already lasted two weeks. Rarely had headaches. Mother died at sixty-nine, and father at seventy-four years of age. Does not know cause of their deaths. Her family physician reported cardiac hypertrophy.



III. Mrs. S.

Plate No. III will show the result of right fundus examination —a rather characteristic picture of retinitis morbus Brightii; the typical fatty degeneration of the fibers of Muller, producing the stellate appearance in the macula region. A rather unusual row of interrupted hemorrhages will be observed to the right. The left eye, with the exception of a few scattered pigment spots near the macula region, showed no changes. Uninary examination showed albumen. This case is particularly interesting on account of the paralysis of the sixth nerve, also from the fact that the strabismus and blurred vision led to the discovery of the renal disease.

As before stated, albuminuric retinitis is almost always seen in both eyes, although the severity of the lesions and the time of their onset may vary in the two eyes. Leber states that marked inequality in the retinal changes is exceptional. Cases of unilateral albuminuric retinitis have been recorded, although in some of them the second eye probably became affected later. A few instances are known in which the disease attacked one eye only (Cheatham

and Webster). My case (No. I) can doubtless be classed with these.

A few cases have been recorded in which ocular paralyses have occurred in subjects of chronic disease of the kidneys. Knies says that such complications of nephritis are not so uncommon as usually believed, but he stands alone in this statement. He cites three cases which he had seen at brief intervals, and refers to one recorded by Finleyson in the *Glasgow Medical Journal*, 1877. The cause is probably hemorrhage from degenerate vessels into the nerve roots or nuclei. Of Knies' cases, the first was one of abducens paralysis in a man with albuminuria of fifteen years' duration. Two relapses of the paralysis occurred in the few months preceding death. The second was left trochlear paralysis in a patient with contracted granular kidneys, who died six months later. The third was a complicated ophthalmoplegia externa in a man, aged twenty-four, with albuminuria of two years' standing. Knies states that the ocular paralyses are indicative of an early fatal termination of the disease, and are suggestive of degeneration of cerebral vessels similar to that found in the vessels of the retina.

MYOTHERAPY.

By Nathan Herman, M.D.

READ AT THE ANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, APRIL 24, 1900.

THE treatment of the sick has, for obvious reasons, ever since the world began, occupied a considerable share of the attention of mankind, and in its evolution various methods have at different times presented themselves, according in some measure with the prevalent state of culture, but more especially with the current theories of health and disease. The earliest remedial procedures, we may readily believe, were prayers and other deity-propitiating or demon-embarrassing actions performed by the priests. At a somewhat later time, through an increase of knowledge and the consequent adoption of other means of treatment, the physician or medicine man becomes differentiated from the priest. Back to these early times we must date the beginnings of muscle-therapy as they are revealed to us in the oldest records of India and China.

From these countries the science and art probably extended to others of later civilization. Among the Greeks, Herodikos, who was the preceptor of Hippocrates, the father of medicine, may himself be considered the father of myotherapy. His precepts in regard to it were carried out by his numerous disciples and followers throughout the Grecian states and Roman dominions for centuries, until, overwhelmed by the irresistible ignorance and superstition which dominated the Middle Ages, the art of healing by muscular movements, like so much else of value, was lost to view.

The gymnastics of the Greeks and Romans was neglected and forgotten, while the movement cure is consigned to the quacks and "bone setters" of the period. Why this should have occurred, while drug treatment continued uninterruptedly, is probably explained not so much by the greater efficacy of the drugs (which is hardly possible when we consider some of the substances administered as such; for instance, "dung of elephant, left foot of a tortoise, liver of a mole, powdered excrement of rats," etc.) as by the prevalent theory of disease. This theory, being based upon demoniac possession, readily accounts for the belief in the great efficacy of such drugs, which by their disgusting qualities were supposed to be powerful agents in the exorcism of the demons of disease, while it was not thought probable that mere muscular exercises or manipulations could contribute much to this desired result. This evident origin of drug treatment will, however, no more deter a physician from the employment of the really efficient drugs of our modern pharmacopeia than will the consideration that astrology was the mother of astronomy stop investigations with the telescope; no more than the fact that chemistry had its birth in alchemy can effect a discontinuance of the ever useful analyses and syntheses of the chemist; no more than the consideration that physics is the direct lineal descent of priestly magic and thaumaturgics will stop the activity which adds victory to victory in man's mastery of his physical environment.

Although at the present time, while there can be little doubt that we are too lavish of drugs, great things are accomplished by their use, the predominance of this treatment over physiologic methods in the Middle Ages, at least, cannot be attributed to any superiority as regards results. In fact, it is not necessary to go back to the Middle Ages to observe the phenomenon of people, regardless of results, availing themselves of the most absurd practices, the result sometimes of still more absurd theories in regard to health and disease, for we have living today, at the dawn of the twentieth century, not only the ignorant chronic medicine-swallower, to whom the nastier the dose the more effective is the drug, but also the would-be cultured homeopath, the Christian Scientist and numerous other psychic monstrosities.

To return to our history: In 1740 Francis Fuller issued a treatise entitled "Medical Gymnastics; or, Everyone His Own Doctor." This served to revive some interest in the subject, and a number of works by other authors appeared from time to time, until, through the excellent work of the Swede, Peter Henry Ling, the various maneuvers of this treatment received their first scientific classification, and thus became firmly established as therapeutic measures. At present advanced medical thought everywhere appreciates fully this branch of therapy. That it occupies no place, or at best a very subordinate one, in the courses of most medical schools of this country is not easily explained, but gives the occasion for this paper.

The importance of the skeletal or voluntary muscles is apparent from the fact that they constitute from two-fifths to a little over one-half the weight of the body, and they readily lend themselves to the physician's or hygienist's purposes. Many of them, being removed from the surface by the intervention of the skin and fascia only, are directly accessible to manual attention, while they can all be reached by means of the various movements of physical exercise, undertaken by the patient alone, or in other cases aided by the physician, or by various machines constructed for the purpose. Both their manipulation, known as massage, and the exercise of their function in the various ways, known as active, passive, and resistance or Swedish movements, which are usually comprised under the names of kineto- or mechano-therapy, not only result in great changes in the shape, nutrition, structure, and function of the muscles themselves, but also give rise to profound alterations in the function and structure of nearly every tissue and organ of the body. These muscle manipulations and exercises are undertaken not only for the treatment or improvement of the muscles, which is one of the aims of physical training, nor yet solely for their effect as a corrective of deformity, as in orthopedic gymnastics, but also, and this is their most important aim, for their systemic effect. In fact, there is no better alterative known than that obtained solely from the exercise of the muscles. As all the above-mentioned maneuvers of and by the muscles are related both in their indications and results, I use the word myotherapy as a general term to embrace them all. For various reasons I consider it more appropriate than either mechano- or kineto-therapy, or any other term that has been used heretofore.

The first effect of muscular manipulation or movement is a local hyperemia. The local circulation becomes more active, which sooner or later, according to the kind and amount of exercise, affects in like manner the general circulation; then the respiratory function is augmented, and finally all the vital functions and processes are accelerated. Especially is this true of the katabolic and excretory functions. This results, if nutrition is adequate, in increased anabolism during rest, and especially during sleep, so that, according to a general physiological law, the losses during exercise are more than counterbalanced by the gains during rest. This is well expressed in the formula, "Function makes structure." In the general katabolism of muscular work the true muscle substance, the sarcous elements of Bowman, and the sarcoplasm which invests them are by far the greatest participants. Their disassimilation, which takes place all the time, but is much more rapid during exercise, results in the production of carbonic acid, kreatin, kreatinin, inosite, inosic, lactic and uric acids, and various other substances, all of which immediately pass into the circulation by way of the lymphatics and capillaries which form an intricate network among the muscle fibers.

The carbonic acid is exchanged for oxygen in the lungs, while most of the other katabolic products are converted by the liver

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TENDENCIES IN MEDICINE IN THE TWENTIETH CENTURY.

By John C. Hemmeter, M.D., Phil.D., etc.,

Professor in the Medical Department of the University of Maryland and Director of the Clinical Laboratory.

READ BEFORE THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, TUESDAY, APRIL 24, 1900.

Clinical and scientific investigations are not calculated to develop the gift of rhetoric nor the esthetics of expression. Boerhave, one of the older German clinicians, who was born in 1668, is the author of the motto "*Simplex sigillum veri,*" and scientific men, conscious of the power of truth, are gradually coming into the manner of stating it in the simplest possible manner. And modesty is a characteristic of their delivery; oratory and science do not go hand in hand. The brain gravid with facts is in its expressions simple, modest and sweet, except in rare instances where great emphasis requires force of statement. Gaze upon the ears of growing wheat—those that contain no fruit raise their heads proudly above the field, but lowly and modest do those bow to the earth that are heavily laden with seed.

Tyndall once compared this to certain crystals of fluor-spar, which, having lain in the depths of the earth darkly hidden for ages, reflect no light, are not fluorescent, but nevertheless have a potency of light locked up within them. The light in the crystals is held by a peculiar molecular structure, a detent, but when these crystals are heated the detent is lifted and an outflow of light at once begins.

Some similar check or inhibition is lifted from me whenever I address physicians. The crystal when warmed by social congeniality begins to show light, though encumbered by a molecular detent imposed by habit and the doctrine of Boerhave, "*Simplex sigillum veri.*"

This evening, as I followed the massive and subtle "motives" of the Tannhauser overture, as I had followed them many times before, the idea came to me that to a musically-trained mind it

should not have been difficult to foretell at the time when Wagner first brought out his unique and original compositions that in them there was contained a genius that must serve in future as a beacon light for other composers; and indeed at the very time of the first production of "Tannhauser" certain German musicians, gifted with acuteness of vision, applied to it the designation of "Music of the Future." How true this prediction of Liszt has come to be may be well known to you from the fact that today it is considered the highest ideal of dramatic music. But to reach this ideal Wagner did not confine himself strictly to the effects of music pure and simple, but he called to his aid other arts, and in his work we find a classical combination of poetry, the drama, painting, and music.

Not only was it possible for minds musically trained to foretell that this talented composer represented a type to be imitated for future ages and new tendencies, but by the highly artistic combination and elaboration of what were called musical motives it was in many instances possible to foretell in the beginning or first act of one of his operas the manner in which the various themes would be utilized in the climax.

In medicine, as in music, it is sometimes possible to foretell coming events, not by any extraordinary acuteness of vision or prescience, but by following the tracks of facts already established and observing their direction out into the unknown domain and hazy territory of the times that are coming. As Juvenal said, "*Nequeo monstrare, et sentio tantum*" ("I cannot embody it in words, but can feel it in my soul"). The statements which may be made concerning the future development of our science are not based on experimental evidence entirely, but are advanced from the psychic conviction that certain things, facts and conditions, which are not now, certainly must eventually be. To begin with the better beaten road of established facts would compel me to refer, though briefly, to that which has been accomplished in this present century, not only in medicine, but in other natural sciences, for the coming progress of medicine will be associated with the progress that is made in other natural sciences, especially physics, chemistry and physiology. Evidently it will be impossible to even outline the tremendous amount of work that has been accomplished during these past 100 years in these domains of knowledge. Under chemistry I should have to refer to the life and work of John Dalton, Johan Jakob Berzelius, Joseph Louis Gay-Lussac, Justus von Liebig, Gustav Robert Kirchhoff, Robert Wilhelm Bunsen, Louis Jacques Maude Daguerre, and John W. Draper. Under physics, to Thomas Young, Michael Farraday, Hans Christian Oersted, Arago, Fresnel Julius Robert Meyer, Jas. Prescott Joules, Sir William Thompson (Lord Kelvin), John Tyndall, Jas. Clerk Maxwell, and Helmholtz. In anatomy and physiology I should have to mention the epoch-making work of Karl Ernst von Baer, William Hyde Wollaston, Matthias Jakob Schleiden, Marie Francois Xavier Bichat, Jean Baptiste Dumas, Claude Bernard, William

Benjamin Carpenter, Hugo von Mohl, Johannes Müller, and Max Schultze. To give the century's progress in biology it would be our duty to speak of Erasmus Darwin, Jean Baptiste de Lamarck, Etienne Geoffrey Saint-Hilaire, Charles Robert Darwin, Alfred Russell Wallace, Thomas Henry Huxley, Asa Gray, and Ernst Heinrich Haeckel.

A glance into the future should reasonably be preceded by a glance into the past.

For the historical references in this essay I am indebted to the articles by Dr. Henry Smith Williams, in *Harper's Monthly Magazine*, 1897, from which the following account of the discovery of auscultation, percussion and anesthesia have been taken.

Two French monarchs have been instruments, unwillingly perhaps, for the advance of medicine. One was Charles IX, who, in proclaiming that all Protestants in France should be put to death on St. Bartholomew's day, made a single exception, that of Ambrose Paré, the father of French surgery. It is probable that this was done from purely selfish motives, for in Paré he preserved the healer of his army's wounds.

Although Napoleon Bonaparte, First Consul, was not lacking in self-appreciation, he probably did not realize that in selecting a physician for his own needs he was markedly influencing the progress of medical science as a whole. Yet so strangely are cause and effect adjusted in human affairs that this simple act of the First Consul had that very unexpected effect, for the man chosen by the envoy of a new method in medical practice, and the fame which came to him through being physician to the First Consul, and subsequently to the Emperor, enabled him to promulgate the practice in a way otherwise impracticable. Hence the indirect but telling value to medical science of Napoleon's selection.

The physician in question was Jean Nicolas de Corvisart. His novel method was nothing more startling than the now familiar procedure of tapping the chest of a patient to elicit sounds indicative of diseased tissues within. At the beginning of the century Corvisart, and perhaps some of his pupils, were probably the only physicians in the world who resorted to this simple and useful procedure. Hence Napoleon's surprise when, on calling in Corvisart, after becoming somewhat dissatisfied with his other physicians, Pinel and Portal, his physical condition was interrogated in this strange manner. With characteristic shrewdness Bonaparte saw the utility of the method, and the physician who thus attempted to substitute scientific method for guesswork in the diagnosis of disease at once found favor in his eyes, and was installed as his regular medical adviser. (Henry Smith Williams, *Harper's Monthly Magazine*, 1897.)

For fifteen years before this Corvisart had practiced percussion, as the chest-tapping method is called, without succeeding in convincing the profession of its value. The method itself, it should be added, had not originated with Corvisart, nor did the French phy-

sician for a moment claim it as his own. The true originator of the practice was the German physician Avenbrugger, who published a book about it as early as 1761. This book had even been translated into French, then the language of international communication everywhere, by Rozière de la Chassagne of Montpelier in 1770, but no one other than Corvisart appears to have paid any attention to either original or translation. It was far otherwise, however, when Corvisart translated Avenbrugger's work anew, with important additions of his own, in 1808. By this time a reaction had set in against metaphysical methods in medicine that had previously been so alluring. The scientific spirit of the time was making itself felt in medical practice, and this, combined with Corvisart's fame, brought the method of percussion into immediate and well-deserved popularity. Thus was laid the foundation of so-called physical diagnosis, which is one of the cornerstones of modern medicine.

The method of physical diagnosis as practiced in our day was by no means completed, however, with the work of Corvisart. Percussion alone tells much less than half the story that may be elicited from the organs of the chest by proper interrogation. The remainder of the story can only be learned by applying the ear itself to the chest, directly or indirectly. Simple as this seems, no one thought of practicing it for some years after Corvisart had shown the value of percussion. Then, in 1815, another Paris physician, Réne Théophile Hyacinthe Laënnec, discovered almost by accident that the sound of the heart-beat could be heard surprisingly through a cylinder of paper held to the ear and against the patient's chest. Acting on the hint thus received, Laënnec substituted a hollow cylinder of wood for the paper, and found himself provided with an instrument through which not merely heart-sounds, but murmurs of the lungs in respiration could be heard with almost startling distinctness. (Henry Smith Williams, M.D., *l. c.*)

The possibility of associating the varying chest sounds with diseased conditions of the organs within appealed to the fertile mind of Laënnec as opening new vistas in therapeutics, which he determinted to enter to the fullest extent practicable. His connection with the hospitals of Paris gave him full opportunity in this direction, and his labors of the next few years served not merely to establish the value of the new method as an aid to diagnosis, but laid the foundations also for the science of morbid anatomy. In 1819 Laënnec published the results of his labors in a work called "Traité d'Auscultation Médiate," a work which forms one of the landmarks of scientific medicine. By mediate auscultation is meant, of course, the interrogation of the chest with the aid of the little instrument already referred to, an instrument which its originator thought hardly worth naming until various barbarous appellations were applied to it by others, after which Laënnec decided to call it the stethoscope, a name which it has ever since retained.

In subsequent years the form of the stethoscope, as usually employed, was modified, and its value augmented by a binauricular attachment, and in very recent years a further improvement has been made through application of the principle of the telephone; but the essentials of auscultation with the stethoscope were established in much detail by Laënnec, and the honor must always be his of thus taking one of the longest single steps by which practical medicine has in our century acquired the right to be considered a rational science.

Laënnec's efforts cost him his life, for he died in 1826 of a lung disease acquired in the course of his hospital practice, but even before this his fame was universal, and the value of his method had been recognized all over the world. Not long after, in 1828, yet another French physician, Piorry, perfected the method of percussion by introducing the custom of tapping, not the chest directly, but the finger or a small metal or rubber plate held against the chest—mediate percussion, in short. This perfected the methods of physical diagnosis of diseases of the chest in all essentials, and from that day till this percussion and auscultation have held an unquestioned place in the regular armamentarium of the physician.

Meantime, in quite another field of medicine, events were developing which led presently to a revelation of greater immediate importance than any other discovery that had come in the century perhaps in any field of science whatever. This was the discovery of the pain-dispelling power of the vapor of sulphuric ether, inhaled by a patient undergoing a surgical operation. This discovery came solely out of America, and it stands curiously isolated, since apparently no minds in any other country were trending toward it even vaguely. Davy, in England, had indeed originated the method of medication by inhalation, and carried out some most interesting experiments fifty years earlier, and it was doubtless his experiments with nitrous oxide gas that gave the clew to one of the American investigators; but this was the sole contribution of preceding generations to the subject, and since the beginning of the century, when Davy turned his attention to other matters, no one had made the slightest advance along the same line until an American dentist renewed the investigation. Moreover, there had been nothing in Davy's experiments to lead anyone to suspect the possibility that a surgical operation might be rendered painless in this way, and, indeed, the surgeons of Europe had acknowledged with one accord that all hopes of finding a means to secure this most desirable end must be utterly abandoned—that the surgeon's knife must ever remain a synonym for slow and indescribable torture. By an odd coincidence, it chanced that Sir Benjamin Brodie, the acknowledged leader of English surgeons, had publicly expressed this as his deliberate though regretted opinion at a time when the quest which he considered futile had already led to the most brilliant success in America, and while the

announcement of the discovery, which then had no transatlantic cable to convey it, was actually on its way to the Old World.

The American dentist just referred to, who was, with one exception to be noted presently, the first man in the world to conceive that the administration of a definite drug might render a surgical operation painless, and to give the belief application, was Dr. Charles W. Wells of Hartford, Conn. The drug with which he operated was nitrous oxide; the operation which he rendered painless was no more important than the extraction of a tooth, yet it sufficed to mark a principle. The year of the experiment was 1844.

The experiments of Dr. Wells, however, though important, were not sufficiently demonstrative to bring the matter prominently to the attention of the medical world. The drug with which he experimented proved not always reliable, and he himself seems ultimately to have given the matter up, or at least to have relaxed his efforts. But meantime a friend to whom he had communicated his belief and expectations took the matter up, and with unremitting zeal carried forward experiments that were destined to lead to more tangible results. This friend was another dentist, Dr. William J. Morton of Boston, then a young man, full of youthful energy and enthusiasm. He seems to have felt that the drug with which Wells had experimented was not the most practicable one for the purpose, and so for several months he experimented with other allied drugs, until finally he hit upon sulphuric ether, and with this was able to make experiments upon animals, and then upon patients in the dental chair that seemed to him absolutely demonstrative.

Full of eager enthusiasm, and absolutely confident of his results, he at once went to Dr. J. C. Warren, one of the foremost surgeons of Boston, and asked permission to test his discovery decisively on one of the patients at the Boston Hospital during a severe operation. The request was granted; the test was made in September, 1846, in the presence of several of the foremost surgeons of the city and a body of medical students. The patient slept quietly while the surgeon's knife was plied, and awoke to astonished comprehension that the ordeal was over. The impossible, the miraculous, had been accomplished.

Swiftly as steam could carry it—slowly enough we should think today—the news was heralded to all the world. It was received in Europe with incredulity, which vanished before repeated experiments. Surgeons were loath to believe that ether, a drug that had long held a subordinate place in the armamentarium of the physician, could accomplish such a miracle. But skepticism vanished before the tests which any surgeon might make, and which surgeons all over the world did make within the next few weeks. Then there came a lingering outcry from a few surgeons, notably some of the Parisians, that the shock of pain was beneficial to the patient; hence that anesthesia—as Dr. Oliver Wendell Holmes had christened the new method—was a procedure not to be advised. Then, too, there came a hue and cry from many a pulpit that pain was

God-given, and hence, on moral grounds, to be clung to rather than renounced. But the outcry of the antediluvians of both hospital and pulpit quickly received its quietus, for soon it was clear that the patient who did not suffer the shock of pain during an operation rallied better than the one who did so suffer, while all humanity outside the pulpit cried shame to the spirit that would doom mankind to suffer needless agony. And so within a few months after that initial operation at the Boston Hospital in 1846 ether had made good its conquest through the civilized world. Only by the most active use of the imagination can we of this present day realize the full meaning of that victory.

Imagine the state of mind of our medical brethren at the beginning of this century, in the year 1800. Imagine the question put to them, "What will be the tendencies of medicine in the nineteenth century?" Ignorant as they were as to the nature and cause of infectious diseases, could they possibly have foretold the coming era of revelation and evolution that medical science would, in the century at whose threshold they stood, explain the causes of diphtheria, typhoid fever, tuberculosis, hydrophobia, tetanus, cholera, and even discover the means of curing many of them? Would they have believed it possible that, by means of a new manifestation of energy, the interior of opaque bodies could be made visible to the human eye? One had only to look into a tube containing a screen of certain composition, and direct it toward a peculiar electrical apparatus, to acquire clairvoyant vision. More wonderful than the discredited second-sight of a medium, that the bones of the human frame would stand revealed in their weird simplicity, as if the living, palpitating flesh about them were but the shadowy substance of a ghost. And yet the standard of the medical mind at the beginning of the century was high, and looked forward into the coming century with high expectations. Speaking of our latter-day preventive inoculation, remember that the anno 1800 physician had seen Jenner vaccinate successfully for smallpox in 1796. And speaking of our latter-day *x*-ray photography, had not Thos. Wedgwood and Humphrey Davy in 1801 proven that it was possible to secure the imprint of a translucent body upon a chemically-prepared plate by exposure to sunlight? In this way translucent pictures were copied and skeletal imprints were secured of living insects and plants which bore a striking resemblance to the shadowgraphs of more opaque objects which we secure by means of the new photography of today. This makes it conceivable that the imprints of Humphrey Davy and Thos. Wedgwood were in reality modified skiographs or shadowgraphs. Already the suggestion has been thrown out that rays in every particular analogous to the Roentgen or *x*-rays are contained in sunlight, together with an abundance of rays of other qualities.

In an article on "The Therapeutic Value of Solar Rays," *Philadelphia Medical Journal*, Vol. I, p. 175, Albert Abrams gives experimental evidence of the penetrating, actinic action of solar rays on solio paper after the rays had traversed the skin, muscles and

other tissues of the thorax of a rabbit. In another article, *Philadelphia Medical Journal*, Vol. IV, p. 655, Valdemar Bie of Copenhagen brings together the facts attributing to the sun's rays certain indubitable bacteriocidal properties. The successful treatment of lupus vulgaris is there illustrated under the influence of sun rays. What will be the development of the *x*-ray method for diagnostic purposes in the coming century? As yet we can use it with exactness only concerning conditions of bones. The states of the heart and kidneys can occasionally be ascertained with limited exactness. Renal calculi are in some cases capable of localization, but the condition of the other tissues, particularly muscles, blood-vessels, nerves, cannot be recognized by this method. One of the first additions to our knowledge which the future will bring to us is that we will be able to recognize conditions of the blood-vessels, or at least their location, by means of the *x*-rays. In his original report, Roentgen stated that the new rays named after him were not only cut off by metals, but by the salts of metals, not only by iron and zinc, but by chloride of iron and sulphate of zinc. As the blood-vessels contain normally a compound of iron, it is reasonable to presume that they should cast a shadow upon the fluoroscope. The reasons why these shadows are not visible to our eye are to be sought either in the power of the *x*-ray apparatus, or in the amount of iron in the blood-vessel itself, which may be insufficient to cut off the rays. The next step in this investigation will be either to increase the penetrating power of the ray, or to increase the amount of iron in the blood-vessels, at first perhaps only in localized areas, those concerning which we desire information. A recent examination of photographic plates gained by the new photography after very long exposure and careful and special development has led me to suspect that the large blood-vessels are already photographed on most of our plates, but are invisible to us from lack of proper development. I mean in this case the chemical development of the plate by means of reagents. So the next advance which we may look forward to is the recognition of the condition of the blood-vessels in the plates gained from *x*-ray photography. Many of the blood-vessels are invisible in photographs of this character, because they are concealed by overlying bones. I do not attempt to cast the horoscope for the new photography. My object at present is reminiscent, not prophetic. It is of interest to recall what knowledge of sciences men had in the days when Wedgwood and Davy, a hundred years ago, photographed with the sun's rays through organic bodies. In order to inquire what is the horizon of a person standing at the threshold of our own century, we must be reminded of the chief scientific legacies of that century to its successor, in order to become more accurately aware of the tendencies of our own mind. What will the future bring in the line of treatment and prophylaxis? There will be no doubt State care of congenital invalids of many kinds, State control of the marriage of individuals affected with diseases of which it can be established that they are propagated by inheritance.

New diseases, hitherto unknown, will inevitably originate from the new industries using tremendous potential energies in electricity, magnetism, light, heat and water-power. New diseases will originate from new industries utilizing chemicals that exert a detrimental influence upon the tissues of the body. New neuroses will originate from the widespread use of electricity, and the almost unavoidable increase of mental pressure, work, responsibility, and from the accompanying neglect of hygienic and dietetic rules. Medical men must raise their voices against the crowding together of human beings in gigantic cities, which must lead to self-destruction. Man is a pastoral animal. The normal human life, like that of the patriarchs, is existence in the country under agricultural occupations; State or government laboratories to study the physiological and pathological effects of food, not only with regard to heat-producing, force-producing and tissue-building effect, but with regard to the influence of psychic functions on the production of possible pathological conditions.

The architecture of private dwellings will provide a special sick-room in each house, similar to the aseptic rooms in first-class hospitals; subdivision of labor among practitioners of medicine; necessity for a more detailed practice; fewer cases, but much higher fees—these will be unavoidable because of the time-robbing analytical and microtechnical work that medical cases require, and which can only be executed in clinical, chemical laboratories.

Considering the enormous and alarming increase of malignant diseases, brings forward the only treatment which has hitherto been of any practical value for such cases, that is, the treatment by surgical operation. I did not intend to consider the prospects of operative surgery in my present paper, but as I have had considerable experience with the results of operative treatment of gastric malignant tumors, I may state my views briefly concerning operative treatment of such diseases of the stomach. In my opinion operative surgery of gastric diseases has almost reached the limit of its development. It stands arrested in front of the natural borders of internal medicine. These are the fundamental pillars of pathology. I am impressed with what appears to be only symptomatic improvement of gastric surgery, for 99 per cent. of all cases of gastric carcinoma that come to operation die of a return of the disease if they survive the immediate results of the operation. The truth must impress itself forcibly upon medical men that surgery cannot be the treatment of the future for carcinoma. In all countries where there are universities and hospitals, medical philosophers, histologists, bacteriologists and chemists are working toward the cause and nature of malignant neoplasms, and the first half of the present century will see the nature of these growths explained, just as tubercule, tetanus and diphtheria have been explained to us, and then will come a logical and effective treatment, based upon a knowledge of the truth concerning this dreadful disease—a treatment under which the malignant growth will melt

away, let us hope, like the pseudo-membrane melts away under the influence of the diphtheria antitoxin.

Will we ever be able to understand and successfully treat all diseases that human flesh is subject to? It is doubtful, for in the very time that we are engaged in solving the problem of the most prominent diseases of one period our new habits of life, new industries, the crowding together of human beings, exhaustion of certain food supplies are originating other diseases, and for all that can be told the end of the next century will confront the medical man of that day with abnormalities baffling to him and beyond our present comprehension. Thus again, renewing his missionary work to heal and to cure, his motto will be "*Nec aspera terrent.*"

RETINITIS ALBUMINURICA.

REPORT OF UNUSUAL CASES.

By James J. Mills, M.D.,

Baltimore.

READ BEFORE THE OPHTHALMOLOGICAL SOCIETY OF MARYLAND.

Retinitis albuminurica occurs chiefly in the chronic form of kidney disease, but also occurs during the albuminuria of pregnancy, after scarlet fever, diphtheria, and occasionally after measles.

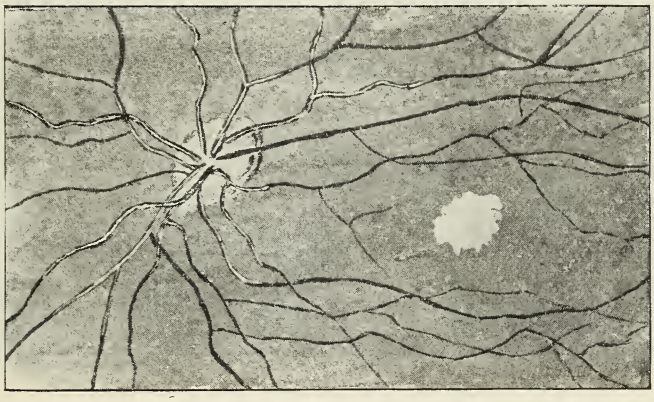
It may develop with any of the forms of kidney lesion. Hypertrophy of the heart often coexists, but is not essential to the retinal complication. The retinal affection usually appears when renal symptoms have been fully declared, and it is also, in a marked number of cases, the first symptom to attract attention. Uremic symptoms, such as headache, morning nausea or vomiting, palpitation with frequent micturition, especially at night, may have existed, or sometimes even these symptoms have not been present.

The severity of the local changes varies greatly, while in rare cases there is uremic blindness or amblyopia, without visible fundus changes. My experience has been that the macula region shows changes more frequently than the optic nerve. Again, we often find the nerve implicated, and the retina scarcely at all. Often both are involved. Most writers agree that it is exceptional to have one eye alone involved, though we often find one eye more affected than the other. It is said that faintly-diffused opacity about the center of the fundus and some redness of the nerve have been seen as the earliest evidences of the disease.

We also find changes affecting the retinal vessels, which are most noticeable in the arteries. These may be easily overlooked unless careful ophthalmoscopic examination is made. Some years ago Gowen described a notable diminution in the size of the retinal arteries, in some cases of chronic renal disease, especially of the granular form. The veins are unaltered in size, but the ar-

teries may be reduced to half their usual breadth or less. This diminution in the size of the retinal arteries is coincident with a pulse of high tension. These statements have been confirmed by Marcus Gunn, who has published a paper on the results of his observations of the retinal vessels in cases of chronic albuminuria and other conditions in which arterial degeneration occurs. The abnormal appearances in the retinal vessels, associated with signs of increased arterial tension, are indicative of widespread sclerosis of arteries, such as is so frequently present in subjects of granular kidney. Alteration in the retinal arteries, indicative of sclerosis of their coats, are commonly seen as part of albuminuric retinitis. In many cases the thickening of the arterial wall and narrowing of the blood stream is very obvious.

The following are a few interesting cases of changes in the retina in renal disease which are sufficiently rare to be worth reporting. I must apologize for the brevity of their history, as only one opportunity was afforded me of seeing two of the cases:



I. Charles B.

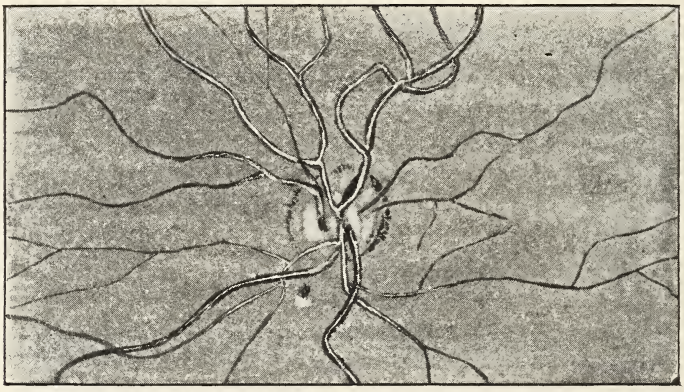
I. Charles B., a stout-looking boy of nineteen, was sent to the dispensary to me with a note from his physician requesting me to examine him for glasses, as he was suffering from severe headaches, which were believed to proceed from an error of refraction. Two years before I saw him he had noticed the vision in his left eye had become defective. He had been to an optician for this, and had been furnished with glasses. He had not complained of nausea—only of severe headaches—and no suspicion of kidney trouble had existed in the minds of his physician or family.

Plate No. I will show a drawing I made at the time of ophthalmoscopic examination of left fundus. The large white patch of degeneration will be observed in the macula region. Otherwise there were no retinal changes noticeable. The right fundus was in every particular normal, and V = 18/15 nearly. I notified his family physician, and requested him to bring me a specimen of his

urine for examination. Instead of this I received a letter informing me that he had made the examination, and found albumen in great quantity. I have since heard that the boy died five months after his visit to me. The family could offer no history to throw any light upon the possible cause of the disease.

This case is interesting from three standpoints: 1st, the fact of only one retina being affected, which is most rare; 2d, that the eyes first called attention to the kidneys; 3d, the youth of the patient.

II. Mr. C., aged twenty-seven, a student in a college some distance from the city, was sent to me for the purpose of having his glasses changed. He had suffered with headaches a year since, but recently had not complained. My book notes show the following: Insufficiency of right internal rectus muscle, the result of tenotomy for convergent strabismus when seven years of age. He cannot always maintain binocular fixation, and when fatigued has diplopia.



II. Mr. C.

Plate No. II will show a sketch of the right fundus drawn by me at this sitting. It will be noticed that with the exception of a very small hemorrhage, and smaller white patch just above the nerve head, the fundus appears normal. The left retina at this time showed no changes. With the correction of his refraction, for which he is wearing glasses, his V = 20/20 in each eye, separately tested. As he was leaving town at noon, I tested his urine, and found sp. gr. 1010. Upon boiling and treating with nitric acid, albumen was found in great abundance, and after settling quite half the bulk was albumen. I informed the head of his college of his serious condition, and have since heard that on account of his health he has been unable to continue his studies.

This case is also interesting from the fact that the asthenopic symptoms led to the ophthalmoscopic examination, and this in turn to the discovery of kidney trouble, where none had been suspected. No history to throw light upon the cause of the kidney disease was obtainable.

III. Mrs. S., aged seventy-six, whilst shopping, was seized with vertigo (two weeks before she consulted me), and says that after recovery from the attack she saw objects doubled. Upon examination she showed paralysis of the right external rectus muscle, producing marked convergent strabismus. Owing to the diplopia she was unable to walk unaided. Micturition was very frequent during the early morning hours for the last two months. Has not complained of nausea. Always had good health before, but now complains of shortness of breath. Has had rheumatism slightly during past two winters. She came to me on account of failing vision in the right eye and the diplopia, which, as stated, came on suddenly, and had already lasted two weeks. Rarely had headaches. Mother died at sixty-nine, and father at seventy-four years of age. Does not know cause of their deaths. Her family physician reported cardiac hypertrophy.

III. Mrs. S.

Plate No. III will show the result of right fundus examination —a rather characteristic picture of retinitis morbus Brightii; the typical fatty degeneration of the fibers of Muller, producing the stellate appearance in the macula region. A rather unusual row of interrupted hemorrhages will be observed to the right. The left eye, with the exception of a few scattered pigment spots near the macula region, showed no changes. Uninary examination showed albumen. This case is particularly interesting on account of the paralysis of the sixth nerve, also from the fact that the strabismus and blurred vision led to the discovery of the renal disease.

As before stated, albuminuric retinitis is almost always seen in both eyes, although the severity of the lesions and the time of their onset may vary in the two eyes. Leber states that marked inequality in the retinal changes is exceptional. Cases of unilateral albuminuric retinitis have been recorded, although in some of them the second eye probably became affected later. A few instances are known in which the disease attacked one eye only (Cheatham

and Webster). My case (No. I) can doubtless be classed with these.

A few cases have been recorded in which ocular paralyses have occurred in subjects of chronic disease of the kidneys. Knies says that such complications of nephritis are not so uncommon as usually believed, but he stands alone in this statement. He cites three cases which he had seen at brief intervals, and refers to one recorded by Finleyson in the *Glasgow Medical Journal*, 1877. The cause is probably hemorrhage from degenerate vessels into the nerve roots or nuclei. Of Knies' cases, the first was one of abducens paralysis in a man with albuminuria of fifteen years' duration. Two relapses of the paralysis occurred in the few months preceding death. The second was left trochlear paralysis in a patient with contracted granular kidneys, who died six months later. The third was a complicated ophthalmoplegia externa in a man, aged twenty-four, with albuminuria of two years' standing. Knies states that the ocular paralyses are indicative of an early fatal termination of the disease, and are suggestive of degeneration of cerebral vessels similar to that found in the vessels of the retina.

MYOTHERAPY.

By Nathan Herman, M.D.

READ AT THE ANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, APRIL 24, 1900.

THE treatment of the sick has, for obvious reasons, ever since the world began, occupied a considerable share of the attention of mankind, and in its evolution various methods have at different times presented themselves, according in some measure with the prevalent state of culture, but more especially with the current theories of health and disease. The earliest remedial procedures, we may readily believe, were prayers and other deity-propitiating or demon-embarrassing actions performed by the priests. At a somewhat later time, through an increase of knowledge and the consequent adoption of other means of treatment, the physician or medicine man becomes differentiated from the priest. Back to these early times we must date the beginnings of muscle-therapy as they are revealed to us in the oldest records of India and China.

From these countries the science and art probably extended to others of later civilization. Among the Greeks, Herodikos, who was the preceptor of Hippocrates, the father of medicine, may himself be considered the father of myotherapy. His precepts in regard to it were carried out by his numerous disciples and followers throughout the Grecian states and Roman dominions for centuries, until, overwhelmed by the irresistible ignorance and superstition which dominated the Middle Ages, the art of healing by muscular movements, like so much else of value, was lost to view.

The gymnastics of the Greeks and Romans was neglected and forgotten, while the movement cure is consigned to the quacks and "bone setters" of the period. Why this should have occurred, while drug treatment continued uninterruptedly, is probably explained not so much by the greater efficacy of the drugs (which is hardly possible when we consider some of the substances administered as such; for instance, "dung of elephant, left foot of a tortoise, liver of a mole, powdered excrement of rats," etc.) as by the prevalent theory of disease. This theory, being based upon demoniac possession, readily accounts for the belief in the great efficacy of such drugs, which by their disgusting qualities were supposed to be powerful agents in the exorcism of the demons of disease, while it was not thought probable that mere muscular exercises or manipulations could contribute much to this desired result. This evident origin of drug treatment will, however, no more deter a physician from the employment of the really efficient drugs of our modern pharmacopeia than will the consideration that astrology was the mother of astronomy stop investigations with the telescope; no more than the fact that chemistry had its birth in alchemy can effect a discontinuance of the ever useful analyses and syntheses of the chemist; no more than the consideration that physics is the direct lineal descent of priestly magic and thaumaturgics will stop the activity which adds victory to victory in man's mastery of his physical environment.

Although at the present time, while there can be little doubt that we are too lavish of drugs, great things are accomplished by their use, the predominance of this treatment over physiologic methods in the Middle Ages, at least, cannot be attributed to any superiority as regards results. In fact, it is not necessary to go back to the Middle Ages to observe the phenomenon of people, regardless of results, availing themselves of the most absurd practices, the result sometimes of still more absurd theories in regard to health and disease, for we have living today, at the dawn of the twentieth century, not only the ignorant chronic medicine-swallower, to whom the nastier the dose the more effective is the drug, but also the would-be cultured homeopath, the Christian Scientist and numerous other psychic monstrosities.

To return to our history: In 1740 Francis Fuller issued a treatise entitled "Medical Gymnastics; or, Everyone His Own Doctor." This served to revive some interest in the subject, and a number of works by other authors appeared from time to time, until, through the excellent work of the Swede, Peter Henry Ling, the various maneuvers of this treatment received their first scientific classification, and thus became firmly established as therapeutic measures. At present advanced medical thought everywhere appreciates fully this branch of therapy. That it occupies no place, or at best a very subordinate one, in the courses of most medical schools of this country is not easily explained, but gives the occasion for this paper.

The importance of the skeletal or voluntary muscles is apparent from the fact that they constitute from two-fifths to a little over one-half the weight of the body, and they readily lend themselves to the physician's or hygienist's purposes. Many of them, being removed from the surface by the intervention of the skin and fascia only, are directly accessible to manual attention, while they can all be reached by means of the various movements of physical exercise, undertaken by the patient alone, or in other cases aided by the physician, or by various machines constructed for the purpose. Both their manipulation, known as massage, and the exercise of their function in the various ways, known as active, passive, and resistance or Swedish movements, which are usually comprised under the names of kineto- or mechano-therapy, not only result in great changes in the shape, nutrition, structure, and function of the muscles themselves, but also give rise to profound alterations in the function and structure of nearly every tissue and organ of the body. These muscle manipulations and exercises are undertaken not only for the treatment or improvement of the muscles, which is one of the aims of physical training, nor yet solely for their effect as a corrective of deformity, as in orthopedic gymnastics, but also, and this is their most important aim, for their systemic effect. In fact, there is no better alterative known than that obtained solely from the exercise of the muscles. As all the above-mentioned maneuvers of and by the muscles are related both in their indications and results, I use the word myotherapy as a general term to embrace them all. For various reasons I consider it more appropriate than either mechano- or kineto-therapy, or any other term that has been used heretofore.

The first effect of muscular manipulation or movement is a local hyperemia. The local circulation becomes more active, which sooner or later, according to the kind and amount of exercise, affects in like manner the general circulation; then the respiratory function is augmented, and finally all the vital functions and processes are accelerated. Especially is this true of the katabolic and excretory functions. This results, if nutrition is adequate, in increased anabolism during rest, and especially during sleep, so that, according to a general physiological law, the losses during exercise are more than counterbalanced by the gains during rest. This is well expressed in the formula, "Function makes structure." In the general katabolism of muscular work the true muscle substance, the sarcous elements of Bowman, and the sarcoplasm which invests them are by far the greatest participants. Their disassimilation, which takes place all the time, but is much more rapid during exercise, results in the production of carbonic acid, kreatin, kreatinin, inosite, inosic, lactic and uric acids, and various other substances, all of which immediately pass into the circulation by way of the lymphatics and capillaries which form an intricate network among the muscle fibers.

The carbonic acid is exchanged for oxygen in the lungs, while most of the other katabolic products are converted by the liver

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

PRIMARY SYPHILITIC CHANCRES. Jonathan Hutchinson, Jr. *Lancet*, June 2 and 9, 1900.

Primary syphilitic lesions are usually (1) a raised papule with marked induration, (2) a raised papule with hardly any or perhaps absolutely no induration, (3) an actual ulcer, having generally an indurated base. One point to be strongly emphasized is that primary lesions may never assume induration, or it may not appear until three or four weeks after contagion.

The inguinal bubo, if carefully looked for, will be found in 99 per cent. of the cases, making it the most characteristic and constant of all the symptoms of syphilitic infection. The glands are indolent and painless, not adherent to the skin or matted to the deeper tissues, and they are usually either almond-like or "bullety."

Typical glands may be met with in one or both groins, and if present on only one side it may be that opposite to the primary lesion. This is due to a crossing of the lymphatics.

Out of 125 infecting chancres in only one did the bubo suppurate.

In 50 per cent. of cases one will find a cord-like thickening of the lymphatic vessels leading from the ulcer toward the groin. Frequently these may be followed to the indurated glands. This is mentioned in no published description, but is of great importance.

The site of genital chancres is:

Preputial orifice, 35 per cent.

Retro-preputial fold, 25 per cent.

Skin surface of penis, 27 per cent.

Glans, 8 per cent.

Meatus and adjoining portion of urethra, 4 per cent.

Frenum, very rare.

Urethra further back than one inch, almost unheard of.

The percentage of chancres is proportionately very much less in Jews than in Christians, owing to the custom of circumcision among the former, and the fact that the highest percentage of lesions are found at the orifice or under the prepuce.

Here, as in those on the outer surface of the penis, the induration is usually quite marked, but owing to the anatomical structure of the glans induration about chancres on this site is very slight, and is called "parchment-like."

Too much importance should not be attached to the statement that primary infecting sores are single, or that if multiple their appearance was simultaneous, for though that is the general rule, you can have autoinoculation before the system has been influenced by the first lesion. Multiplicity occurs in about 20 per cent. of cases.

Extragenital chancres are much more frequent than is generally supposed, and are too often overlooked.

First, as regards their occurrence on the hands: They are usually found on the fingers, particularly toward the extremities, and especially on doctors and nurses. They usually have the form of circular, granulating patches, with an edge of discolored or pigmented skin, and are somewhat raised. The induration may be only slight, and they are, as a rule, painless, unless they happen to occur just around the nails (perionychial whitlow). Although often suspicious in appearance, there is absolutely nothing characteristic about these sores to show that they are chancres. Markedly enlarged axillary glands are, however, as constant an accompaniment of these lesions as are the inguinal glands with those on the genitalia.

Next in frequency, probably, are the chancres of the lips. Then they are occasionally found in almost every portion of the body, viz., eyelids, in the mouth even on the tonsils, on the forehead, chin, scalp, and, finally, on the legs and feet.

A few words again on the subject of indurated lymphatic cords will not be out of place. If carefully looked for they will be found in from 40 per cent. to 50 per cent. of cases of primary syphilis. They are most frequent in the conjunction of the furrow, or the inner aspect of the prepuce. It must be granted that they are less constant than the bubo, but sometimes they are better marked and of greater value in diagnosis.

Are these primary lymphatic cords ever found without syphilis? The exceptions are few, but it must be admitted that they do occasionally occur.

Although syphilitic joint disease and tertiary syphilitic gland disease are both rare, there is a tendency for both to occur in the same individual. This is of extreme interest in comparing syphilis with tuberculosis. In tuberculosis, disease of the lymphatic glands and disease of the joints are two of the main symptoms.

Syphilis contracted from congenital sources is in itself no severer than that arising from a genital lesion, but the former sore is usually so long unrecognized that the disease gets a strong hold on the system, and consequently its course is more serious.

Some persons, even untreated, may have milder attacks than others, but treatment is most important. The date at which treatment is begun and the persistence with which it is pursued strongly influence the results. Even where secondary symptoms have been mild, whether as a result of treatment or not, there is no guarantee (if mercury be not continued for a long time) that tertiary symptoms will not occur or may not be very severe.

The true phagedenic chancre is uncommon nowadays. Its incubation is very short, perhaps only a few days; the bubo is slight or absent, and mercury has little or no effect in checking the destructive process. Many cases of phagedena escape secondaries. It is usually in concealed locations, especially where there is a phimosis.

The treatment should be thorough cleansing under an anesthetic, the cautery, and then the patient should be kept in a bath of hot, weak bichloride of mercury for several days.

Now arises the important question of the difficulties in diagnosticating primary infecting sores. First, as to the decision between "soft sores" and true infective chancres: The "soft sore" may become indurated after the lapse of a certain time. This ulcer is said to be due to a specific bacillus, but it is premature to speak positively as to that. We are also ignorant whether or not a micro-organism causes the true chancre.

The soft, non-infecting sores are usually multiple, and in many cases are accompanied by suppurating glands in the groin. Their incubation is shorter—usually three to five days. One of these lesions may, however, later take on induration and prove infective.

In from three to four weeks the character of the ulcer can generally be decided upon, but it may be six or even more before a positive diagnosis can be made. The more experience one has the more cautious he becomes in making his diagnosis.

Even granting that the "soft chancre" has a peculiar bacillus, its presence would not prove that the patient had not acquired the syphilitic virus also. The clinical investigation of the ulcer and bubo from all their aspects, not forgetting to examine for indurated lymphatic cords, must be the main guides.

Tertiary ulcerations of the genitals are often treated for primary sores. Recurrent induration, and sometimes even ulceration at the site of the primary chancre, arouses great interest with regard to the germ theory of syphilis. Syphilis imitates tuberculosis in many of its effects. Residual tuberculous abscesses or relapsing induration and gummatous ulcerations at the site of primary sores are due to a sort of reawakening of the germs of the syphilitic virus which have lain dormant for years close to the scar. But this is pure theory.

Epithelioma of the penis occurs either in the form of a cauliflower growth or of a disc of induration, the latter being extremely like a primary sore. Never prolong unduly the trial of antisyphilitic treatment in a doubtful case. If the ulcer is a chancre, two or three weeks will be time enough for diagnosis.

In molluscum contagiosum, if one of the nodules is shed spontaneously the ulcer left may possibly be mistaken for a chancre.

The ulcers are better treated with drying powders than ointments. For the doubtful sores, one part iodoform to four of boric can hardly be improved on. Calomel and blackwash are excellent applications for venereal sores.

As soon as the diagnosis of primary syphilis is certain, give mercury.

Excision of a chancre, even within a few days of contagion, is useless.

The most important fact brought out in the above review is one which in our experience we have found so constant that we are at present reviewing the records of the genito-urinary department of

the Johns Hopkins Hospital Dispensary. Up to date we have looked over only 100 cases. The enlarged, indurated, but not suppurative, bubo is, as Hutchinson says, the most constant sign of a syphilitic lesion. We also have found it in 99 per cent. of our cases. In the one which did suppurate there were several ulcers on the penis, all without induration (probably a mixed infection). But even in these cases of mixed infection, *i. e.*, where we have several ulcers, one or more, or perhaps none of them indurated, yet one certainly a syphilitic lesion, there is not generally a suppurating bubo. On the other hand, though no count has yet been made as regards the purely chancroidal bubo, it is quite evident that a very large percentage are suppurative. Hence, instead of saying, as did the older Hutchinson, that a scar in the groin as the result of a suppurative bubo is strong evidence of syphilis, we say, rather, a scar, the result of an incised suppurative bubo, is strong evidence *against* syphilis.

The induration around the lesion has been absent in 9 per cent., and the 91 per cent. where it was present has varied from almost none to quite a marked degree, not only in the different locations, but in the different ulcers at the same sites. We believe that the absence of induration is represented here by a larger percentage than further study will show, but under any circumstances we must see how uncertain it is to depend too much on this point for positive diagnosis. Especially is this the case when we remember that a small number of non-specific ulcers assume an induration which defies differentiation from the syphilitic even by the most experienced surgeons.

Generally the induration is greatest in connection with sores on the retro-preputial fold, next with those on the skin, and least with those on the glans.

We have not found antisyphilitic treatment so simple hat we feel justified in a case of doubt (and we consider all cases doubtful) in giving it to a patient, but prefer waiting until a beginning secondary manifestation renders our diagnosis positive. Then, if a careful watch has been kept and treatment begun immediately, all is well, and we know with what we are dealing.

Hutchinson truly says that very little reliance can be placed in the singleness or multiplicity of lesions. We found them multiple in 19 per cent. In 3 per cent. were they multiple, with no induration surrounding any of the ulcers; in 4 per cent. one sore showed induration and the other or others lacked it; in 12 per cent. all were indurated.

For the present we will pass over the incubation period of single or multiple lesions, because it is a matter of history, and we all know how little faith can be put in what a patient tells us. Add falsehood to ignorance, and we have such a narrow field left to work in that statistics are not so valuable as they might be.

Lastly, as regards the site of primary syphilitic sores: We have found this a little different from Hutchinson. With the material at hand we are unable to differentiate between the preputial orifice

and the retro-preputial, but we find that on the two sites 42 per cent., instead of 60 per cent., occur, while on the outer skin, between pubes and the preputial orifice, the percentage is 15 per cent., instead of 27 per cent.; on the glans 6 per cent., instead of 8 per cent.

At the meatus alone, not including those definitely intraurethral, we have 4 per cent., and 3 per cent. inside the urethra (floor), one of these being two inches from the meatus. This Hutchinson views with doubt. At the frenum, again, our statistics disagree. He says that this is a very rare location, while we find 12 per cent. of our lesions there.

In the reviewed article no special mention is made of the corona, and as this is the border line between the glans and preputial fold, ulcers there could be classed with either. According to us, 13 per cent. were situated here. If these be added to the preputial ones we would have those increased to 55 per cent., or if added to those on the glans 19 per cent. would appear there.

Our extragenital percentage was 4, and one occurred on the scrotum.

The site of the lesion has no bearing whatever on the diagnosis, but is a matter of interest from the standpoint of circumcision, as shown by Hutchinson.

Preputial fold, 42 per cent.
Skin surface, 15 per cent.
Corona, 13 per cent.
Frenum, 12 per cent.
Glans, 6 per cent.
Meatus, 4 per cent.
Extragenital, 4 per cent.
Urethral, 3 per cent.
Scrotal, 1 per cent.—total, 100 per cent.

With circumcision the exposed tissue is toughened, and there is less danger of syphilitic infection in 77 per cent.:

Prepuce, 42 per cent.
Corona, 13 per cent.
Frenum, 12 per cent.
Glans, 6 per cent.
Meatus, 4 per cent.—total, 77 per cent.

* * *

Experimental and Surgical Notes upon the Bacteriology of the Upper Portions of the Alimentary Canal, with Observations on the Establishment there of an Amicrobic State as a Preliminary to Operative Procedures on the Stomach and Small Intestine. Cushing and Livengood. "Welch's Festschrift."

The authors review at length the literature of the subject, and then detail their observations on thirty-three dogs and fourteen persons. The results of their study in its surgical relation may briefly be summarized as follows:

In the upper portion of the intestinal tract the bacterial flora is more scanty than in the lower portion.

"No definite varieties of micro-organisms seem to be constant elements of this flora, which is apparently dependent upon the bacterial features of the ingesta for its characteristics.

"Some pathogenic varieties, especially streptococci, most readily escape the antiseptic properties of the gastric juice, which is, at its best, limited in its germicidal action.

"At the terminal stages of digestion, and especially after a fast, it is difficult to recover micro-organisms from the mucous membrane of the stomach, duodenum and even of the jejunum as far down as complete emptying of the canal has occurred.

"It is of importance, therefore, by sterilization to rid the food of micro-organisms, especially of such forms as streptococci, preliminary to operative procedures, and also to insure a condition of emptiness of the upper part of the digestive tract.

"As peritonitis following intestinal wounds, operative or accidental, is dependent for its characteristics upon the bacterial flora of the canal at the site of lesion, the prognosis of such condition will be favorable proportionately with the scarcity and innocuousness of the micro-organisms which are present."

Book Reviews.

A Text-Book of Practical Therapeutics. With Especial Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by Drs. G. E. de Schweinitz, Edward Martin and Barton C. Hirst. New (eighth) edition. In one octavo volume of 796 pages, with thirty-seven engravings and three colored plates. Cloth, $4; leather, $5 net. Philadelphia and New York: Lea Bros. & Co.

In the eighth edition of this popular book is included a large majority of the important newer remedies and therapeutic measures. Foreign medical journals, especially those published in Germany, have been for the past few years devoting so much space to the consideration of the newer remedies by well-known clinicians, chemists and physiologists that text-book on therapeutics must be revised at very frequent intervals to give us any assurance that the treatment recommended is at all "modern."

The care in preparation and frequent reappearance of Hare's book have rendered this possible, and in this new edition the modern heroin, eucaine, exalgine, nosophen, somnal, thyreoidine and urotropin are to be found in

happy companionship with blue mass, black wash and other old and trusted friends.

The book is eminently practical. The first part is devoted to a consideration of the various drugs, their occurrence, mode of preparation, use, etc., while in the second part diseases are considered in alphabetical order, with the appropriate treatment carefully, though tersely, described. Besides these, the two larger subdivisions of the work, there are also to be found a chapter on foods for the sick (when, unfortunately, the newer foods, tropon, plasmon, somalose, etc., are not considered), tables of doses of medicines, and of relative weights and measures in the various systems, an index of drugs and remedial measures, and an index of diseases and remedies.

The book, while of necessity, from its somewhat small size (800 pages), not going deeply into the physiological and chemical problems involved, nevertheless presents in a very condensed and convenient form the most modern views regarding the action of drugs and the treatment of diseases, and is a thoroughly satisfactory exposition of practical therapeutics.

B.

Diseases of the Stomach: Their Special Pathology, Diagnosis and Treatment, with Sections on Anatomy, Physiology, Chemical and Microscopical Examination of Stomach Contents, Dietetics, Surgery of the Stomach, etc. By John C. Hemmeter, M.D., Professor in the Medical Department of the University of Maryland, Baltimore. With many original illustrations, a number of which are in colors. Second edition, enlarged and revised. Octavo; pp. 898. Price $6 net, cloth. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut street.

The great value of Hemmeter's book lies undoubtedly in its careful review of the work done by the great German clinicians in this field, notably Riegel, Boas, and Ewald, and the wealth of references which it furnishes. The book has been thoroughly revised and brought up to date, and references to practically all the articles of value upon diseases of the stomach which have appeared during the past few years will be found incorporated in this new edition.

The English in which this book is written jars somewhat upon the ears of the student, but the printing and illustrations are both beyond reproach, and must prove a source of much pleasure to the reader, especially the reproductions of Mall's studies of the circulation of the stomach.

As to the original matter in the book, one can but feel that many of the methods suggested and instruments employed increase our knowledge but little and the discomfort of the patient a great deal. However much we may take exception to some of these procedures and to the rather diagrammatic way the author has of presenting his own cases, one cannot deny that the book is a valuable one, especially to those who do not understand German, and should be productive of much increase in the knowledge of gastric diseases among the members of the general medical fraternity into whose hands it falls.

B.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in Jefferson Medical College of Philadelphia. Volume II, 1900. Octavo, handsomely bound in cloth; pp. 401, with eighty-one engravings. Issued quarterly. Price $10 per year. Philadelphia and New York: Lea Bros. & Co.

Two articles in this second volume of the current series of "Progressive Medicine" are commended as of special value to general practitioners—the first, by Wm. B. Coley, and the third, by Alfred Stengel.

Dr. Coley's contribution is upon "Surgery of the Abdomen, Including Hernia."

Beginning with surgery of the stomach, one finds that the advances of a year past have brought us somewhat of value in the treatment of displacements, and have added much to the treatment of gastric ulcer, especially in the presence of grave complications and sequelae, such as hemorrhage, perforation, stenosis and dilatation. Indeed, in perforating cases, formerly regarded as almost inevitably fatal, the hope which has long looked toward surgery has received great good cheer. Recent statistics are given showing that since 1896 the mortality in operated cases has fallen nearly one-half, from 63.36 per cent. to 35.71 per cent. Tables are given showing the close dependence of prognosis upon early diagnosis and speedy operation, and it is also shown that the surgical procedure has itself improved within the past three years so far that the mortality of operations done within the first twelve hours has diminished from 36.67 per cent. to 16.21 per cent. This marked gain in operative technique has brought the treatment of hemorrhage and refractory ulcer within the lines of surgery.

Twenty-two pages of this article are devoted to appendicitis, giving very fully, though briefly, the common sense of the best men upon this most important subject.

The subject of Hernia is considered in twenty pages; about as much space is given to Plastic Operations upon the Colon and to the Surgery of the Liver, and there is a very valuable chapter upon the Diagnosis of Abdominal Tumors and Renal Calculi. This article of Coley's is a fair sample of the contents of the book.

Space is wanting to consider the admirable article of Stengel, which in general interest is equal to that of Dr. Coley. It treats of Diseases of the Blood, Diathetic and Metabolic Diseases, and Diseases of the Glandular and Lymphatic System. Particularly interesting in this part of the book are the forty pages upon Diabetes and Glycosuria.

The other two articles which make up the volume are by John G. Clark on Gynecology, and Edward Jackson on Ophthalmology.

The illustrations throughout this volume may be fairly pronounced superb. They are perhaps better than have hitherto appeared in this valuable and very practical publication. F.

TUBERCULOSIS: Its Nature, Prevention and Treatment, with Special Reference to the Open-Air Treatment of Phthisis. By Alfred Hillier, B.A., M.D., C.M., Fellow of the Royal Medico-Chirurgical Society, London; Member of the National Association for the Prevention of Consumption, etc. With thirty-one illustrations and three colored plates. London and New York: Cassell & Co. 1900. For sale by Medical & Standard Book Co., 3 West Saratoga street, Baltimore.

This little book is intended "primarily for practitioners of medicine and medical students." There is a short introductory chapter on the history and etiology of tuberculosis. The second chapter, the longest in the book, treats of the clinical forms of tuberculosis, and of the diagnosis of phthisis. The classification is that of Osler. The third and fourth chapters consider the transmission of tuberculosis from man to man, and from animals to man. Here one is struck with the almost paramount importance assigned to dust in the causation of phthisis. There is no reference to the important work of Flügge on the aerial suspension of moist bacilli in fine spray from the lungs. "The breath of the consumptive is free from danger" seems to be a dangerous dictum. Coughing, sneezing, singing, laughing, and even speaking, are all respiratory acts which, according to their energy, may freight the breath of the consumptive with moist bacilli more virulent, if less numerous, than their dust-borne cousins.

The identity of the bacillus of human tuberculosis with that of other mammals is assumed by the author, no allusion being made to the reasonable doubts on this point—a pardonable anticipation, perhaps, of coming truth.

In the fourth chapter there is a "roast" of the Second Royal Commission on Tuberculosis, and, later in the sixth chapter, the Commission is basted to a turn.

The chapters on treatment are very good, the open-air method receiving full consideration. Most of the pictures refer to this part of the book, but they are scattered about quite at random, with no relation at all to the adjacent reading matter.

Several interesting reprints are found in an appendix, including the recommendations of the Second Royal Commission on Tuberculosis. F.

A MANUAL OF OPERATIVE SURGERY. By Lewis A. Stimson and John Rogers, Jr. Fourth and revised edition. With two hundred and ninety-three illustrations. Philadelphia: Lea Bros. & Co.

The author attempts to handle too large a subject in too few words. As an operative guide it would do us very little good, and hence can serve but one purpose, viz., as a quiz compend. In this *rôle* we can say only words of praise. Cleanliness is insisted upon. The operative methods mentioned are good, and the descriptions are as clear as the brevity will permit. W. H. H

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, AUGUST, 1900.

"SHALL THE SPECIALIST DIVIDE THE FEE WITH THE GENERAL PRACTITIONER?"

WE have received from Dr. Emory Lanphear, editor of the *American Journal of Surgery and Gynecology*, an extract from a paper on the above subject, read before the Missouri State Medical Society, with the request that we shall reprint and comment upon it.

Our views on a subject closely related were given in the MARYLAND MEDICAL JOURNAL for January, 1900, but we cheerfully give space to Dr. Lanphear's communication, since it contains a definite and debatable proposition. Dr. Lanphear says:

"When an attorney in a county-seat has a client in danger of the penitentiary, and hence in need of the very best counsel, it is customary for him to seek some eminent lawyer of a great city and request his aid. In so doing does he approach the distinguished gentleman and say, 'I have a client accused of ——, who is able to pay $3000 for his acquittal; will you take the case with me for this sum, leaving me the gratification of having done my professional duty?' By no means! He plainly states, 'My patron has $3000 to spend for his defense; are you willing to take $2000 of this to join me in securing justice for him?'

"Arrangements of this kind are made daily in every large city. Does anyone ever suggest that the country attorney has been guilty of a dishonorable act in thus securing his city brother to do the major part of the work for $2000, he retaining $1000 for his services? Would a doctor, sued for $100,000, regard such a transaction as disgraceful, unethical, objectionable, if thereby he were saved this sum?

"But let the question be one of saving life instead of securing liberty or preventing a financial loss—and how different it is!

"If a country practitioner have a patient affected with recurrent appendicitis (upon whom he might operate with success, but fears possible failure), with a prospective fee of $600, must he—in order to be 'ethical'—write to some city surgeon to come to his help, take all of the $600, and leave him merely the satisfaction of a duty well performed, or at best the little sum he may receive for a few visits at starvation rates? 'Upon what meat doth this our Cesar feed that he hath grown so great?'

"Why should not the country doctor plainly say to the specialist, 'I have a patient with appendicitis who is able to pay $600; will you operate for $400, and allow me $200 for the preparation, after-treatment, etc.?' What would be wrong about this? Let Drs. Robt. T. Morris of New York and Burnside Foster of St. Paul, who so vigorously maintain that division of the fee is unethical under any and all circumstances, point out what injus-

tice would thereby be done to (a) the patient, (b) the attending physician, or (c) the eminent surgeon. Why should we not learn a few things from the methods of our most noted lawyers, men who are above suspicion as to purity of motives? Have we not hitherto been too unmindful of the financial interests of ourselves and our professional brothers?

"I insist that the payment of a 'commission' for all business simply 'referred' to a specialist, or for mere consultations, is probably unethical—certainly demoralizing in tendency—but that division of the fee is perfectly honorable and right when the specialist and the general practitioner jointly share the work and the responsibility."

First of all, let us agree that true ethical standards for lawyers and medical men are more than similar—they are the same. In respect to fees, the honest lawyer has no advantage which the honest physician has not, except that his business methods are better.

If a man suffering with renal calculus should say to his regular attendant, "Arrange the business of having me cured, and keep the whole cost, if possible, within $2000," any competent physician should be able to complete such a commission to the satisfaction of all concerned, and might, without hesitation, render a statement including an item of $400 or $500 for himself. Such arrangements as this are quite usually made with attorneys, but very rarely with physicians, and the reasons in respect to both professions are wholly outside of ethics. The proposition between two attorneys and that which we have just stated are closely analogous, and neither is offensive to ethical common sense.

But between these propositions and Dr. Lanphear's hypothetical case of recurrent appendicitis there is no analogy, and the reasons why two conscientious professional men may not make such an arrangement lie well within the domain of ethics. In this case one must observe a sad, not to say reprehensible, lack of confidence between doctor and patient. Here is a medical man halting at the parting of three ways. He may operate himself, unsuccessfully perhaps, and collect $600; or he may allow a surgeon to operate, receiving the $600, and may charge up, perhaps unsuccessfully, his own attendance; or he may ask the surgeon to pay over $200 in satisfaction of what is due him from the (?) patient. This last alternative, so attractive to the doctor, is obviously the most advantageous to the patient; therefore why, in the name of either business or ethics, consult the surgeon first about it? Is it because the surgeon would rather pay $200 for a $600 fee than receive an unabated $400? If the $200 cannot be obtained from the patient, it certainly cannot be credited to the patient after it has been obtained from the surgeon. Here is an easy test of the moral quality of every such transaction—that it shall be aboveboard and fair to all concerned.

Let us suppose the medical attendant to have made with the surgeon precisely the arrangement suggested by Dr. Lanphear, and that the recovered patient, having paid $600 to the surgeon, later asks the medical man for his bill. What do the "ethics" of the deal require? What was the form of the surgeon's receipt? Is the $200 entered on the doctor's books? If so, is it to the patient's credit? Then the patient should have an acknowledgment. But the surgeon made the payment. To the surgeon's

credit? Then the patient's account is open, and may be settled. But if more money is taken the $200 should go back—to the surgeon?—no, to the patient—no, this last payment should be divided with the—?—?; perhaps the $200 should not appear on the books at all, though this later cash may be credited to the patient and kept. Hardly fair to the surgeon, or to—; damn this patient with too much money! Will Dr. Lanphear kindly furnish some "ethical' language in which to decline this embarrassing tender of cash?

Every debit must have its credit. If this transaction can be squared on three ledgers, and three acknowledgments drawn which will preserve unimpaired confidence and good-will among these three honest men, then no further argument can be made against the ethics of the deal. There are expert accountants who can do this highly specialized form of bookkeeping Such artists are said to be numerous, and they are easy to find, for all of them are, or hope not to be, incarcerated.

These reflections are addressed to the terms of Dr. Lanphear's proposition, which seem to assume that the diagnosis was correct, that the operation was necessary, that the patient agreed with the doctor upon a fee, that the doctor made these facts the basis of a business offer to a surgeon, that the surgeon accepted without having seen the patient, and that the patient does not know that his money was divided.

We have not considered at all the relations of the surgeon to the matter, but have chosen to attack that phase of the question which Dr. Lanphear's statement leaves in some obscurity.

If these views are, as we believe, correct, it by no means follows that an equitable partition of whatever a sick man can pay for his cure is impossible or even difficult. The prerequisite to a square deal is that each of the several interests shall be frankly displayed and fairly considered. The patient wants his money to go as far as possible toward the satisfaction of both his attendants, and of these neither can, without sordidness, permit the other to bear more than his share of the necessary abatement. The dividends upon an insolvent estate are equally distributed, and this business may be adjusted in the same way, with the ethical exception that, three men consenting, the fact of insolvency need not appear in the record.

When but a modest sum is available to pay a considerable debt there is a chance to effect a settlement more satisfying all round than cent per cent., and that such opportunities come often to doctors is not to be bewailed.

FUMBLERS WITH FINE TOOLS.

"I did an idyl on Joachim's fiddle
At a classical soiree in June,
While jolly dogs laughed at themes from Spohr.
And longed for a tu-u-u-une."

It is a wise practice of medical journals to disclaim responsibility for the views of contributors, but this general disclaimer seems sometimes to include a waiver of every guarantee except that the performance will be rendered in endurable English. Some American editors will give space, under the head of correspondence, to any understandable goose who desires to honk. Whether these uncouth solos should have a place in

scientific programmes depends somewhat upon the taste of one's audience, and every editor is presumed to know his audience; but American audiences and the American purveyors of entertainment are alike insensible to the humane motive in dealing with performers. To permit a man to stand up and trumpet his own folly in the presence of intelligent people is shocking bad taste, and may be heartless cruelty. The incompetent who would undertake any dangerous task for which he is manifestly unfitted is as much to be defended against himself as if he were insane. It is perhaps impossible to wholly exclude freak performances from the platforms of the great societies, but they can be shut out from the printed journal, and to do so is but editorial mercy. At the recent meeting of the American Medical Association a "turn" of this sort was done on the subject of an epidemic eruptive disease resembling smallpox, and one or two of the audience piped "tit-willow" to it. The judgment of the audience was very properly suppressed. It was an irritating little performance, by no means worth the violent reaction which seemed impending. The performer got away unbattered, but before another season arrives his little tin trumpet will have gone the way of all toys.

In a recent number of the *Journal of the American Medical Association* appears a letter from San Francisco, aspersing the local health officials in very offensive language, and attempting to show that there has been no bubonic plague in that city. The one qualification which the writer claims is a year's experience in India. From this point of view it seems probable that there are in San Francisco hundreds of Orientals better qualified, and from an examination of his "reasoning" it seems doubtful if there is anyone less qualified, to speak to scientific men upon the subject. He gives nine "reasons" why none of the eleven cases reported can be considered plague. Of these nine "reasons" eight are satisfactorily answered by two syllables—"ha! ha!" The sixth "reason" alone does not tickle the diaphragm of a reader at the Atlantic coast, but it deserves no better rejoinder, since the allegations of fact contained in this sixth "reason," whether true or untrue, are wholly irrelevant to the question at issue. The identification of plague at San Francisco was made in a prompt and positive manner highly creditable to the investigators. The question of diagnosis is practically beyond doubt, but not beyond the review of anyone who is able to study the subject by modern methods. If this unfortunate correspondent of the *Journal of the American Medical Association* has the ability to see what he knows, or to know what he sees in the laboratory, he missed a fine opportunity to give substantial reasons for the doubt that is in him. The "nine reasons" are but the self-inflicted wounds of a man who, possessing facility of speech and opulent ignorance of bubonic plague, attempted to juggle the fine tools of modern diagnosis. And the fumbling was done in the most frequented arena of American medical journalism.

BY WAY OF CONTRAST.

A DISPUTANT of different caliber appears in the *Philadelphia Medical Journal* of July 21 with "A Bacteriological Résumé of the San Francisco Plague." Ernest Pillsbury obtained from the body of Cheu Yee Yan, who died on June 2, two glands, one from the neck and one from the groin.

From both he grew a bacillus differing in cultural characteristics from the pest bacillus, and corresponding "in every particular with that described by Sternberg as the B. septicemiae hemorrhagicae, familiarly known as the bacillus of chicken-cholera." This organism killed a rabbit in thirty-six hours, and a rat in six days after inoculation, and the bacillus was recovered from both bodies. Pillsbury says that this germ was to his positive knowledge found in three of the cases of reported plague, "and it has been the finding of this bacillus in which a diagnosis of plague has been made."

Here is a doubter whose "reasons" are reasonable, and whose statements are worth the review of the laboratory. His reasoning upon his own data is, however, not beyond editorial criticism.

There is, as he says, no reason why the pathogenicity of the chicken-cholera bacillus should be confined to lower animals, but there is less than no reason why the Chinese in San Francisco should "seem so peculiarly susceptible."

Because no connection was traced between any two cases, and because but one case occurred in each house, he says "we present to the world eleven *atypical* cases," etc. To take the city by stealth and the citizen by assault is the inveterate habit of plague. It would be the last perfection of disguise if fowl-cholera should add these two characteristics to its predilection for Chinamen.

Dr. Pillsbury had specimens from but one case, and it is interesting to compare his findings with those of the official investigators, as reported by Dr. Douglas W. Montgomery in the *Journal of the American Medical Association* for July 14. This was for them the eleventh case. It was, so far as we are informed, Dr. Pillsbury's first and last. It was the case which led Dr. Kinyoun to the most positive and unequivocal diagnosis of plague, and it is one of the cases from which materials for further study may be obtained.

THE DATE OF THE COMING PAN-AMERICAN MEDICAL CONGRESS.

A CORRESPONDENT of the *Philadelphia Medical Journal* calls attention to the unseasonable date set for the Pan-American Medical Congress at Havana, and suggests that it ought to be postponed a full month. The objections to the published date, December 26, must have occurred to every medical man in the United States who has thought of attending. First of all, one is reluctant to leave home at Christmas. This consideration alone will prevent the attendance of men who have no very weighty reason for going to Havana. Next comes the importance of the new year as settling time.

If a doctor were willing to sacrifice his Christmas at home, his business interests would suffer by his absence at New Year. To postpone the congress until January 26 would assure a much larger attendance than can reasonably be expected in Christmas week. It is doubtful if a majority of those who intend to present papers will be on hand at the time proposed, while of those who make of such meetings a small outing a good majority will certainly stay at home.

New Books

ACCESSIONS TO THE FRICK COLLECTION AND GENERAL LIBRARY OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

	DATE.
Ashby and Wright, Diseases of Children	1900
Baglivi, Opera omnia	1704
Baldwin, Mental Development	1898
Bechamp, Le Sang	
Bickel, Pathogenese der Cholaemie	1900
Bigelow, Anesthesia; Addresses, etc	1900
Bigelow, Dislocations and Fractures; Litholapaxy	1900
Bigelow, Orthopedic Surgery, etc	1900
Bigelow, Memoir of	1900
Blau, Hrsgb., Encyklopädie der Ohrenheilkunde	1900
Brockbank, Murmurs of Mitral Disease	
Bunge, Physiologischen und Path. Chemie	
Butlin, Operative Surgery of Malignant Disease	1900
Cheadle, Lectures on Practice of Medicine	1900
Contributions from the William Pepper Laboratory of Clinical Medicine	1900
Contributions to the Science of Medicine, Dedicated by his Pupils to W. H. Welch	1900
Deaver, Surgical Anatomy, Vol. II	1900
Densmore, Consumption	1899
Dürck, Atlas of Special Pathologic Histology	1900
Edinger, Nervösen Centralorgane	
Einhorn, Diseases of the Intestines	1900
Encyclopedia Medica, Vol. I	1899
Fenwick, Ulcer of the Stomach	1900
"Festschrift" in Honor of Abraham Jacobi	1900
Foster, Claude Bernard	
Fuller, Diseases of the Genito-Urinary System	1900
Gould, ed., American Year-Book (Medicine)	1900
Gould and Pyle, Cyclopedia of Practical Medicine and Surgery	
Golebiewski, Atlas of Diseases Caused by Accidents	1900
Grünwald, Nasal Suppuration	1900
Hallopeau and Leredde, Traité pratique de Dermatologie	1900
Hare, Practical Therapeutics, eighth edition	1900
Hare, ed., Progressive Medicine, March	1900
Heller, Krankheiten der Nägel	1900
Henschen, Pathologie des Gehirns, 2 vols	
Herschell, Constipation	
Hoffmann, Paroxysmale Tachycardie	1900
Howard, Sex Worship	1899
Husband, Practice of Medicine	
Hutchinson, Archives of Surgery, Vols. VIII-X	
International Clinics, ninth ser., Vol. IV	1900

Jacobi "Festschrift"..... 1900
Jahresbericht über Neurologie und Psychiatrie.....1897-98
Kehr, Einzelnen Formen der Gallensteinkrankheit.....
Keyes and Chetwood, Venereal Diseases.....
Kleen, Diabetes Mellitus.....
Koelliker, Erinnerungen aus meinem Leben.....
Lilienthal, Imperative Surgery.....
M'Kendrick, Hermann L. F. von Helmhóltz.....
Matthes, Klinische Hydrotherapie..... 1900
Montenegro, Bubonic Plague..... 1900
O'Brien, ed., Medical and Surgical Nursing..... 1900
Oppenheim, Medical Diseases of Childhood..... 1900
Paget, Experiments on Animals..... 1900
Paracelsus, Hermetic and Alchemical Writings, 2 vols..... 1894
Pyle, ed., Personal Hygiene..... 1900
Robson and Macrae, Diseases of the Gall-Bladder..... 1900
Robin, L'Appareil Digestif, 2 vols.....
Rovsing, Infektiösen Krankheiten der Harnorgane..... 1898
Sachs and Freund, Nervensystem nach Unfallen.....
Shuttleworth, Mentally Deficient Children.....
Schoedel and Nauwerck, Möller-Barlow'sche Krankheit..... 1900
Scott, Clinical Examination of Urine..... 1900
Simon, Clinical Diagnosis, third edition..... 1900
Sowry, Le Système Nerveux Central, 2 vols.....
Stonham, Manual of Surgery, 3 vols.....
Tirard, Medical Treatment of Diseases and Symptoms..... 1900
Watson, ed., Encyclopedia Medica, Vol. I..... 1899
Watson, Handbook for Nurses..... 1900
West, Granular Kidney.....
Wichmann, Die Rückenmarksnerven.....
Wilson, Clinical Studies in Vice and Insanity..... 1899
Wolkow und Delitzin, Wanderniere.....
Young, comp., Annals of the Barber-Surgeons of London..... 1890

THE COLON BACILLUS CURE FOR HYSTERIA.

F. WALTER (*N. Y. Medical Journal, July 21,*) offers a cure for hysteria, which, if not quite new, is a very modern refinement of the "mouse tea" of long, long ago. Two theories are suggested as to the etiology of hysteria. One is that a bacillus resembling colon bacillus is the cause of hysteria, the other that the ordinary colon bacillus in certain subjects takes on toxic properties. The therapeutic proposition is to displace the offending bacillus by a massive culture of the colon bacillus of the hog. The "well matured" growth of one Petri dish is to be divided into from three to six doses of which three are given daily. Walter says "that this remedy is to be classed among specifics; indeed the action of quinine in malarial fever is no surer."

[It was a brilliant *appercu* which led to the source of the intestinal bacterium for this purpose. The hog is definitely immune to hysteria. If failure occurs, explanation may be found in the sex of the hog. If the hog proves to be a sow, the sex of the patient is doubtful.—ED.]

Medical Items.

Dr. John F. Hill is the republican nominee for governor of Maine.

Dr. Henry Page of the United States army in Manila was married on June 1 to Miss Edith Longfellow Greenleaf.

Dr. Thomas Welch of Davidsonville, Anne Arundel county, died at his home on July 16, aged sixty-one years.

The surgeons to the three ships burned at Hoboken all escaped—Dr. Leuthe of the Bremen, Dr. Staly of the Saale and Dr. Brauns of the Main.

George P. Dreyer, associate professor of physiology in Johns Hopkins, has accepted a call to the chair of physiology in the College of Physicians and Surgeons, Chicago.

According to Mr. Treeves, Dr. Jameson gives the following instructions concerning the hygienic handling of South African water: "Boil it, strain it, filter it and throw it away."

Our leper colony at Molokai contains 1100 persons, 625 males and 475 females. Of the entire number 984 are Hawaiians, 62 are half-breeds, 37 are Chinese, 5 American, 4 British, 4 German and 6 Portuguese.

Visitors to the International Exposition at Paris will be unusually exposed to typhoid infection. Typhoid fever is at present quite prevalent there, and the water supply is known to be infected. Prudent persons will take particular heed of food and drink.

Deaths from self-administered "headache cures" continue to occur. A man in Lancaster county, Pennsylvania, was recently found in a barn dead with a vial of these pills beside him. Narrow escapes are somewhat common. Acetanilid is the analgesic agent in most of these nostrums.

Howard Bentham, who had been convicted of murdering his wife and was sentenced to be executed, held an insurance policy upon his own life. The company thought he was a "goner," and waiving the proofs of death and other indelicate preliminaries, paid the claim in full. But Mr. Bentham got a new trial and was acquitted.

The convicted abortionist, George C. Worthington, was refused a new trial, and was also denied a release upon bail pending the decision of the Court of Appeals upon his case. This brings a very adroit criminal to the eve of the harvest of his ill deeds. When the bolt is shot upon his liberty the community may be congratulated.

Dr. John Ashhurst, Jr., died at his home in Philadelphia on July 7, aged sixty-one years. During the civil war he served as a surgeon in the United States Army. Later he became professor of clinical surgery in the University of Pennsylvania, and since 1888 was John Rhea Barton professor of surgery. His best-known work was his system of surgery.

Drs. H. E. Durham and Walter Myers from the Liverpool School of Tropical Medicine arrived in Baltimore on July 8. Their mission, to study yellow fever and dysentery in the United States and Brazil, has the cooperation of the British government. Besides yellow fever and dysentery they will also test Ross' work upon malaria. They expect soon to sail for Para, Brazil.

Plague has now a good foothold in Rio Janeiro, having stealthily established itself since early in January. Some of the newspapers, like newspapers further north, are berating the health officials, declaring that no plague exists, that the doctors are bacillus-mad. An epidemic occurred among the rats in the custom-house. It was proven beyond doubt, but not past denial.

Yale has conferred the degree of LL.D. upon Dr. Lewis A. Steinson of New York. Harvard has bestowed the same degree upon Dr. William H. Welch of Baltimore. In conferring the degree upon Dr. Welch, President Elliott said: "William Henry Welch, who holds first place in the medical profession of the United States as a teacher, pathologist and organizer of medical progress."

At request of Dr. Deering J. Roberts the following is inserted:

Notice.—All surgeons, assistant surgeons, acting assistant surgeons or contract surgeons, and hospital stewards, who served in the army or navy of the late Confederate States, will please send their postoffice address to Deering J. Roberts, M.D., secretary Surgeons' Association, C. S. A., Nashville, Tenn.

Dr. James Bosley, city health commissioner, wants the sanitary ordinances of Baltimore revised and codified. This is a necessary work and should not be long delayed. A sanitary code is always of slow growth, and the present amendments and additions lead constantly to such contradictions and ambiguities as make them the sport of shrewd lawyers.

The mayor of Marseilles put a premium of one cent upon each rat or mouse delivered alive or dead to the authorities. This was done on May 15, and in fifteen days only 686 premiums had been paid. This rate of destruction is not regarded as satisfactory, and experiments are to be made with a communicable disease. The cause of the order against rats was the appearance of plague at Port Said and Smyrna.

According to the *Medical Record* the antivaccinationists of New York mean to defeat Mr. Roosevelt at the polls in November, and will include Mr. McKinley in the same punishment unless they jointly and severally relieve themselves of the charge of complicity in the vaccination of a hundred or so negroes at Stockport, N. Y. This resolution is said to have been effected by some six or seven "strenuous" aunties.

The State Board of Medical Examiners of New Jersey on July 5 determined to admit to the practice of medicine in that State the licensees of other State boards, provided that the candidate for such endorsement shall present satisfactory evidence of the academic and medical education required by the New Jersey board, and that the license presented for endorsement shall have been issued after a State examination of the same grade and kind as that required by the New Jersey board.

Dr. A. J. C. Skene of Brooklyn, N. Y., died on July 4 at his summer home in the Catskills. Dr. Skene was born in Aberdeenshire, Scotland, in 1838, and came to America at the age of nineteen. He graduated in medicine at Long Island College Hospital in 1863, and served as a surgeon in the United States Army during the civil war. After the war he became adjunct professor of surgery in Long Island College Hospital, and later was made professor of gynecology in the same school. His contributions to medical literature were numerous and valuable, and much of his work possessed marked originality. His best-known work was his text-book on diseases of women.

B. N. Shiddell of Lexington, Ky., died on June 30. His name traveled far in the scientific world in connection with the inheritance of mutilations. He clipped the tails of white mice and bred them till in seven generations he produced a race of tailless mice. It is not known how long he maintained this singular breed. Having satisfied himself that the curtailed variety could perpetuate itself, he reversed the process, stretching the rudimentary tails of succeeding generations until he bred a tail which could be curled. Having curled the tails for a few generations, he produced a race of white mice who could and did pull corks, though they were never seen to do so early in the evening. With this spiral spring a great surprise was sprung upon the scientific world. Shiddell was eighty-three years old at the time of his death. He was a grocer by trade, and a scientific man by inspiration. His observations covered more than a hundred generations of white mice, but, so far as is known, none of them survived him.

At request of Dr. A. L. Benedict the following letter is published:

Editor Maryland Medical Journal,
Baltimore, Md.:

Dear Sir—The Pan-American Exposition has seen fit to entrust the care of the department of ethnology and archeology to a practicing physician. I should be very glad if you would allow me to reach your readers with the following request for assistance:

Many members of the medical profession are interested in the study of American ethnology and archeology, and not a few have valuable collections of Indian relics and skeletons from Indian graves. Those not directly interested in this study are so circumstanced as to be aware of the hobbies of their neighbors, and could doubtless furnish the address of collectors. I should be greatly obliged for information and for the loan of collections for the use of this department of the exposition. Exhibits which represent study in some special line of American ethnology and archeology will be particularly suitable.

Very truly yours,
A. L. Benedict, M. D.,
Supt. of Ethnology and Archeology.

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REMARKS ON INTESTINAL OBSTRUCTION.

By Randolph Winslow, M.D.,

Professor of Anatomy and Clinical Surgery in the University of Maryland, Baltimore.

The term intestinal obstruction is applied to a variety of dissimilar conditions, which have as a common symptom, a stoppage of the fecal evacuations. This condition is always a serious one, and if not properly relieved, is followed by death. If, on the other hand, prompt surgical treatment is rendered, recovery will take place in a large proportion of cases. The late Greig Smith is responsible for the statement that 80 per cent. of recoveries ought to follow a prompt surgical treatment, in competent hands.

Intestinal obstruction occurs in both an acute, and chronic form. The acute form is that of which I wish to speak at present. Acute ileus is due to a variety of pathological conditions, amongst which the most common are strangulation by bands, by kinks due to adhesions, by intussusception of one portion of intestine into another portion, by twists or volvulus, by foreign bodies, strictures, the pressure of tumors, and in some cases by fecal impaction. Usually the patient is in his accustomed health, when, after some imprudence in diet, or perhaps without any assignable cause, he is seized suddenly with pain in the abdomen, vomiting, and the usual symptoms of an acute indigestion. These symptoms, however, do not cease, but the pain grows worse, the vomiting continues; the bowels may have moved at first, but soon neither flatus nor feces pass. The abdomen usually becomes tympanitic, but if the obstruction is situated at the upper portion of the intestinal tract, there will be little or no tympanites. In many cases the intestinal coils may be seen outlined on the abdominal walls, and the peristaltic movements are visible. The vomiting is at first only of the gastric contents; later bile is regurgitated, and if the obstruction continues, after a variable time, stercoraceous vomiting occurs. The pain is intermittent in character, and is due to the efforts of the bowels to force their contents onward. In some varieties of obstruction a lump may be felt, as in intussusception, but ordinarily the localizing symptoms are very indistinct. Sometimes

the pain is referred to the seat of the constriction, but generally it is diffused or referred to the umbilical region. A slimy, bloody discharge from the rectum is suggestive of invagination, and at times the invaginated bowel can be felt when the finger is inserted into the rectum.

The urinary secretion is markedly diminished, especially if the obstruction is located high up. This is due to the constant vomiting of all ingested fluids, as well as to the fact that less liquids are swallowed than usual. The pulse at first is but little altered, but becomes quick and thready if the condition continues. The temperature is also not elevated until absorption of the intestinal poisons occurs or peritonitis supervenes. The facial expression is anxious, and the features rapidly become pinched, giving the person an aged appearance. The symptoms are usually such as are ascribed to indigestion, but to a careful observer very early in the attack the suspicion of a serious trouble will arise. The most obvious symptoms are the occurrence of vomiting and paroxysmal pain at first, without apparently any sufficient cause in many cases; then the bowels refuse to act, and after the evacuation of the contents of that portion of the intestine below the obstruction there is no further fecal movement, and, what is more characteristic, no passage of flatus. Stercoraceous vomiting usually does not occur for forty-eight or more hours, and is pathognomonic of serious obstruction of some kind.

The prognosis of intestinal obstruction is always serious, but its gravity is materially diminished if the condition is recognized early and proper treatment instituted before sepsis or peritonitis has set in.

The treatment of a mechanical obstruction of the bowels is surgical, but in the early stages it may be impossible to discriminate for a time between mechanical and functional obstruction; hence at the onset an attempt should be made to move the bowels. Epsom salts, castor oil or croton oil may be given in sufficient quantity to cause free alvine evacuations, but if there is no expulsion of feces or flatus the use of purgatives should not be continued. High enemata should also be employed, but not much time should be lost in these efforts. If the judicious use of purgatives and enemata are not effectual within twenty-four or thirty-six hours laparotomy should be performed without further delay.

The following cases have come under my care during the past winter, and serve to exemplify many of the foregoing statements:

Case 1. *Intestinal obstruction from the adhesion of loop of small intestine to the outer wall of an abscess.—Recovery.*

H. De S., aged eleven years, was brought from Ocean City to the University Hospital on September 12, 1899, with appendicitis, and was operated on that night. The appendix was intensely inflamed, rigid and turned upwards, and there was localized peritonitis, but no abscess. The appendix was removed and the wound closed. He did well for several days, when it became evident that pus was present, and the abdominal wound was opened and a

small quantity of the pus was found beneath the cecum. Subsequently it became evident that another abscess had formed, and a free incision evacuated a large quantity of pus, which had extended up as far as to the liver. All unfavorable symptoms subsided, and on the twenty-sixth day his temperature was 97.8°, pulse 80, bowels moving freely, and he appeared to be absolutely convalescent at noon on October 7. At 5.30 P. M. of this day he was taken with colicky pains and vomiting, which were supposed to be due to indigestion. He had a bad night, and on the next day the symptoms continued, and coils of intestines could be seen outlined on the abdominal walls. High enemata brought away some fecal matter. On October 9 there was no improvement in his symptoms; temperature 98°, pulse 88, but neither flatus nor feces had passed. A fourth laparotomy was now done in the right linea semilunaris, and a loop of jejunum was found adherent to the outer wall of the abscess, which had kinked the gut at that point. The adhesions were broken up and the bowel released. The intestines were congested, and fluid was found in considerable quantity in the peritoneal cavity, but no actual peritonitis. The bowels moved three times during the night after the operation, and he made an uninterrupted recovery. The obstruction was of forty-eight hours' duration.

Case 2. *Intestinal obstruction from a band encircling the ileum about one inch from the ileo-cecal valve.—Recovery.*

Mrs. S., aged thirty years, was admitted to University Hospital on December 2, 1899. One brother died of consumption, supposed to have been contracted from his wife; otherwise the family history is negative. The patient is rather delicate in appearance, but has fair health. On the night of November 29 she went to an entertainment and ate rather freely. When she returned home she was taken with rather severe pain in the lower part of the abdomen, and vomited twice. On Thanksgiving day, November 30, the pain continued, and salts failed to move the bowels. An enema emptied the colon and gave some relief. A hypodermic injection of morphia relieved the pain and gave her some rest. On December 1 the pain and vomiting recurred and continued until the 2d. I was invited to see her by Dr. Morris Robins at 6 P. M. on December 2. She was very anxious in expression, the abdomen was somewhat distended, but not excessively tympanitic, nor was it particularly tender on pressure. There was no lump to be felt by palpation. No feces or flatus had been expelled for nearly three days. She had paroxysms of pain. In my presence she vomited large quantities of fluid with a fecal odor. As it was evident that there was a mechanical obstruction to the outflow of feces, she was sent to the hospital that night and at once prepared for operation. Laparotomy was done at midnight. The intestines were found moderately distended, and a band encircling the ileum about one inch from the ileo-cecal valve, the parts below being collapsed. This band was divided, and at once the collapsed portion of the bowel filled. The intestines were also covered with pearly spots,

looking like miliary tubercles, but there was no peritonitis, and the causation of the band is unknown to me. The abdominal wound was closed without drainage, and the after-history was almost uneventful, the temperature reaching 101° on one day only. She went home in three weeks well, and has remained so since.

Case 3. *Intestinal obstruction from a band.—Recovery.*

Mrs. T., aged twenty-six years; admitted to University Hospital on March 9, 1900. Family history good; past history negative. The patient has been healthy, and was confined five months ago, but suffered from an attack of mild peritonitis subsequently. On March 7 she ate no supper, and retired feeling well. She slept comfortably until 1 A. M. on the 8th, when she was awakened by a pain in the upper part of the abdomen. She took some whiskey, which gave her no relief, but caused eructation of large quantities of gas. The pain continued; she became nauseated, and vomited at irregular intervals. I was summoned to see her about 6 A. M., when she was vomiting greenish matter and having pain in paroxysms. A hypodermic injection of morphia was administered, which relieved the pain and gave some sleep. The vomiting and pain returned, however, and all efforts to move the bowels were futile. On the morning of the 9th I became convinced she had a mechanical obstruction, and after consultation with her family physician, Dr. George W. Norris, determined to perform laparotomy. She was removed to the University Hospital, where vomiting occurred frequently, the last being stercoraceous. Previous to operation the contents of the stomach and upper intestines were siphoned off, and the stomach thoroughly washed out. At this time her temperature was 99°, pulse 100, respiration 20. Laparotomy was done about thirty-six hours from the onset of the trouble. An incision was made in the middle line. The peritoneum was injected, and there was considerable free fluid in the cavity. The upper part of the intestines were distended, the lower portion collapsed. A coil of intestine, apparently about the junction of the jejunum and ileum, was tightly constricted by a peritoneal band, situated to the left of the median line. Upon the division of this band the collapsed bowel filled up, and a fecal evacuation followed some hours later. The subsequent history of the case is almost uneventful, except that the temperature for about a week ran from 100° to 101°, pulse 106 to 126. She made an uninterrupted recovery, and returned to her home in three weeks.

These three cases illustrate the usual onset of this trouble. They were all taken with sudden, sharp and unexpected pain in the abdomen, vomiting and moderate tympanitis, supposed in each case to be an attack of colic. But the symptoms did not cease, and the obstruction to the fecal current became pronounced. In two cases the obstruction was due to constriction by an adventitious band; in one to a kink from an adhesion. In one case operation was performed in thirty-six hours, in one in forty-eight hours, and in the other in seventy-two hours. In conclusion, I wish to emphasize the importance of an early diagnosis and prompt operation if these cases are to be rescued from impending death.

TRAUMATIC RUPTURE OF THE POPLITEAL ARTERY WITH GANGRENE OF THE LEG—AMPUTATION—RECOVERY.

By James C. Bloodgood, M.D.,
Baltimore, Md.

Summary of History.—Dislocation posterior of right knee-joint, with subcutaneous complete transverse rupture of the popliteal artery at its bifurcation. Plugging of the artery with a thrombus; no hematoma in popliteal space. Thrombosis of popliteal vein. Gangrene of leg beginning immediately after injury. Condition of extreme shock when admitted three hours after injury not associated with great loss of blood. Observed three days; high temperature (104.8° F.), and leucocytosis 8000, due probably to fibrin ferment, as the extravasated blood and gangrenous tissue was sterile. Amputation through condyles of femur on the third day; recovery.

History in Detail.—W. G. (surg. No. 10,718), aged nineteen years, fireman on a tugboat. Admitted to the Johns Hopkins Hospital on July 30, 1900. There was nothing in the previous history to suggest any arterial disease. The accident took place at 6.30 P. M. The patient was admitted to the hospital three hours later. The injury was as follows: The man was standing on the deck of the tugboat near the door of the fireroom; an explosion occurred, and he was blown into the air, falling into the water; he does not remember how he was rescued. He was brought to the hospital by the police patrol.

Examination on Admission Three Hours After the Accident.—The patient is in an extreme condition of shock; apparently there has been no great loss of blood from the superficially lacerated wound; he is conscious; the pulse 120, but very weak; he complains of some pain in the right leg, and constantly asks for water. Morphia, gr. $\frac{1}{4}$, and a salt transfusion were given at once. The leg was put up in an antiseptic dressing. There are superficial burns on face, arms and chest, but not severe. There is a fracture of the external head of the left tibia, with great relaxation of the ligaments of the knee-joint.

The chief injury, however, is to the right leg. Attempting to manipulate this leg, it quickly takes position of posterior dislocation, but can be easily reduced. The soft parts about the joint, especially in the popliteal space, are contused and edematous. There is definite empysema, as if air entered through the lacerated wound situated in the posterior part of the thigh (*cover slips—no gas bacilli*). It was noted at the first examination that the skin of the leg was distinctly cold. There was no pulsation in the tibial vessels; there was complete anesthesia up to an irregular line a few centimeters below the knee, except the area supplied by the internal saphenous nerve.

The patient was observed from July 30, 9.30 P. M., to August 3, 8 P. M., a period of three days. The temperature chart shows

continuous fever, between 101° and 102°. The pulse varied from 110 to 140; pulse and temperature were the best on the morning of the second day. There was no further external hemorrhage, no abdominal symptoms, no mental symptoms. The patient was seen by me at 6 P. M., August 2, in consultation with Dr. Mitchell. The evidence of gangrene of the leg was distinct; there had been very little change since the first note, except that the emphysema had disappeared. The condition of the patient was rapidly growing worse; temperature 104.8°, pulse 128, respiration about 30. He did not complain of very much pain in the leg; there was no hematoma in the popliteal space, but the tissues were soft. The calf of the leg was indurated and showed every evidence of extravasation of blood. The posterior dislocation of the knee had been reduced. The clinical picture was a pretty clear one of a rupture of a popliteal artery. The patient consented to amputation. The high temperature, with leucocytes of only 8000, was suggestive that the fever was due to fibrin ferment, and not to an infection.

Operation August 2, 8 P. M. The ether was well taken, the amount about 100 grammes, the full time about twenty-five minutes. The leg was too painful to clean before the patient was anesthetized. At the end of about five or ten minutes of ether the leg was rapidly cleaned and the amputation rapidly done, making an anterior flap, disarticulating at the knee-joint, sawing condyles of femur and removing the patella. The popliteal vessels were clamped and the ether discontinued; complete anesthetic time twenty-five minutes. The patient's pulse previous to ether 140; within five minutes after the beginning of ether it dropped to 120, and continued at 120 during the operation. The muscles of the thigh were in good condition; the subcutaneous fat and tissue between the muscles contained extravasated blood, but no evidence of infection; the lacerated wound did not communicate with the popliteal space; the divided popliteal vessels did not contain a thrombus. The long anterior flap was drawn over the bone and partly closed. The posterior wound was packed with gauze and left open.

Examination of the Specimen.—The synovial membrane of the knee-joint is slightly injected with subcutaneous hemorrhage. There is a little blood-stained serum in the joint; no evidence of infection, and no gas. The popliteal vessels had been divided about 3 cm. above the rupture; the anterior and posterior tibial vessels were completely torn in a transverse direction; the stump of the posterior tibial artery was not more than 2 mm.; the stump of the anterior tibial artery about 1 cm. From the posterior tibial stump projected a firm clot which was tightly fixed and projected into the popliteal artery, blocking not only this vessel, but the lumen of the anterior tibial. The stump of the anterior tibial artery did not contain a thrombus. The accompanying veins were not torn, but were thrombosed, the thrombosis extending up into the popliteal vein about 1 cm. above the position of rupture. The lower stumps of the tibial arteries had retracted and were found with difficulty. The lumens of the vessels were small, and each

contained a thin, narrow, string-like clot. The gangrene of the muscles extended higher than that of the skin. The muscles of the superficial layer were anemic (pale gray in color). Those of the deeper layer were hemorrhagic (very dark red in color). The intermuscular connective tissue and fat were filled with extravasated blood. The anemic tissues were dry, the hemorrhagic tissues juicy. There was no emphysema of any of the tissues. That observed directly after the accident about the lacerated wound had disappeared. There was no evidence of infection. Cover slips and cultures, aerobic and anaerobic, found sterile.

Discussion of the Case.—The clinical picture in this case when first seen three hours after the accident was sufficient to make a positive diagnosis. The very early evidence of cessation of pulsation in the tibial vessels, complete anesthesia, and coldness of foot and leg would indicate a complete rupture of all the coats of the artery rather than a rupture of the inner coats only, as described by Hertzog, which will be discussed later. The condition of extreme shock present in this case contraindicated operative interference for at least twenty-four hours. This condition of shock without great loss of blood has been noted by other observers. The high temperature associated with grangrene pointed to a possibility of infection through the external wound or through the circulation (*Progressive Medicine*, December, 1899, p. 173, case 22). The rapid appearance of the emphysema within three hours of the accident, with the absence of the gas bacillus in the cover slips from the lacerated wound, were distinctly against an infection with the bacillus aerogenes capsulatus of Welch. This gas bacillus is practically the only bacillus which can produce gaseous phlegmon (see Dr. Welch's most recent article, *Johns Hopkins Hospital Bulletin*, September, 1900). The low leucocytosis, 8000, was against infection, and in favor of fibrin ferment.

The patient is making an uninterrupted recovery.

In *Progressive Medicine* for December, 1899, I discussed the literature of this subject. Hertzog (*Beitrage zur klin. Chir.*, 1899, Bd. XXIII, H. 3, p. 643), writing for the clinic of Professor Bruns, in Tübingen, reports a case and gives an excellent *résumé* of the literature. It is of the utmost importance for surgeons to remember that from a simple contusion over the artery, without injury of the skin, with or without fracture, or with or without a dislocation, the internal coats of the artery may be ruptured, and this may be followed by thrombosis and gangrene. It is important also from a medico-legal standpoint, especially in cases of fracture, and in those cases where the injury has apparently been a simple one, yet gangrene has taken place. The surgeon himself may for a moment believe that the gangrene is due in some way to his treatment. Hertzog calls attention to the fact that traumatic gangrene as a result of rupture of the internal coats of the artery is given but a meagre notice in the majority of works on surgery. With his one case he has been able to collect from the literature sixty-two others in which, following the contusion of the artery, there has been an isolated rupture of the intima alone, or of the intima and media,

and in every instance thrombosis has followed, and in the majority of cases gangrene. Hertzog's patient had received a severe contusion of the popliteal space, and in addition the leg was wrenched; there was no rupture of the skin and no fracture. Immediately following the injury there was a good deal of swelling and pain in the knee, and later in the leg, but no hematoma. On the third day the foot was cold, and there was a distinct loss of sensation. He was admitted to the surgical clinic on the sixth day. There was slight fever and every evidence of gangrene of the leg. No pulsation was felt in the popliteal artery. As the fever continued, the leg was amputated on the twelfth day after Gritti's method. The examination of the tissues demonstrated a circular rupture of the inner two coats of the popliteal artery at about the level of the knee-joint. The two coats had rolled upon themselves, and the vessel was thrombosed above the seat of injury. Hertzog's case is a typical example of rupture of the inner coats, with thrombosis and gangrene. Hertzog collected sixty-three cases in which the following arteries were involved: Brachial, 18; popliteal, 15; axillary, 7; femoral, 8; external iliac, 4; common iliac, abdominal aorta, posterior tibial, subclavian, each 2; the internal carotid, radial and ulnar, each 1. This rupture of the internal coats of the artery is less common than a complete or partial rupture of all the coats. Following the rupture of the intima or media the two coats of the artery roll upon themselves, and the thrombus forms always above and sometimes below the seat of injury. Thrombosis is, as a rule, complete, and if the collateral circulation is not sufficient, gangrene follows. Although this disease predisposes the artery to rupture, nevertheless in many, and perhaps the majority, of these cases there have been no evidences of previous disease of the vessels. The cause is always a direct trauma. In recent fracture and dislocation it is sometimes difficult to tell whether rupture is due to the primary injury or to the force used in reduction. This fact should be borne in mind. In every recent dislocation or fracture one should ascertain, by careful palpation, the pulsation of the peripheral arteries before and immediately after reduction. Of the sixty-three cases reported by Hertzog, seven died from shock or other extensive injuries before sufficient time had passed to allow the manifestation of gangrene. At the autopsy of these cases the circumscribed rupture of the inner coats of the artery was demonstrated. Of the remaining fifty-six cases, in twenty-three there was no grangrene, and in thirty-eight cases gangrene resulted. Evidence of rupture in thirty-five cases was ascertained at autopsy or at operation when the artery was excised at the site of injury. In twenty-one cases the diagnosis was made from the clinical course. Of thirty cases investigated anatomically, in nine the intima alone was torn; in twenty-one the intima and media together. With two exceptions the tear was transverse; in one case there was a cross tear; in a second case there were two tears; a longitudinal tear was not observed. In the majority of cases the tear was complete; in a few cases incomplete. The coats were rolled up, and the thrombus was situated above the point of rup-

ture. It is very interesting to note that in many of the cases the blood stream was not completely plugged at once; there was a slowing by the thrombosis, and finally a complete obstruction. Of the sixty-three cases, in thirty-seven rupture was associated with fracture, and in four with dislocation. In the great majority of cases there was no injury of the skin.

Clinically, we must make a differential diagnosis, if possible, between this form of rupture and that of the case just reported in which there is a complete or partial rupture of all the coats, which in some cases is followed by the formation of the hematoma or a false aneurism. If a thrombus forms in the end of the completely or partially ruptured artery, completely plugging it, as was the condition in the case just reported by me, there will be no hematoma and no aneurism. The differential diagnosis, as I said, is generally difficult. However, when, after the injury to one of the extremities, we find no pulsation in the peripheral vessels, anesthesia and lowered local temperature, these are distinct indications of injury to the vessel. The anesthesia is the most important sign. If there is no marked tumor along the line of the vessel, in the great majority of cases the rupture is confined to the inner coats, because in these instances there is no extravasation of blood.

In regard to traumatic gangrene from rupture of all the arterial coats, there are recent articles by Schultz (*Deutsch. Zeitschr. f. Chir.*, 1897, XLVI) and Bötticher (*Deutsch. Zeitschr. f. Chir.*, 1898, Bd. XLIX, H. 2 and 3). Bötticher's publication is entitled "On the Mechanism of Subcutaneous Rupture of Arteries in Connection with a Case of Tearing of the Popliteal Artery." The case reported by Bötticher from the clinic of Professor Bruns is very similar to the one reported by me. There was sudden trauma from overextension of the knee, followed by intense pain, with loss of function. One hour later there was a large swelling of the popliteal space (hematoma, so characteristic in complete rupture). Not until the third day were coldness and anesthesia of the foot noted (no careful examination was made before this day). The patient did not come to the clinic until the sixth day. At this time gangrene was evident. At the operation there was a large hematoma in the popliteal space and an oblique tear of the artery just as it passed through the adductor slit. Thrombosis of the vein was present, beginning at some distance below the level of the arterial rupture. There is no note whether the ruptured artery was plugged by a thrombus, as in my own case. Bötticher expresses the opinion that an earlier operation within the first few hours might have prevented gangrene. Here one would have ligated the ruptured vessel and removed the hematoma by irrigation. This might have relieved the surrounding tissues of much tension and aided the collateral circulation. Meyer's case (*Deutsch. Zeitschr. f. Chir.*, April, 1899, Bd. LI, H. 3 and 4) is reported because the most prominent sign, hematoma in the popliteal space, was not present. He refers to Billroth's case (*Arch. f. klin. Chir.*, Bd. X), with a similar observation. These two cases agree with my own, and, judging from the cases in the literature, the rupture of the

popliteal artery, with its immediate plugging with a thrombus, without the formation of a hematoma in the popliteal space, is rare. In addition to the case just reported, I have observed with Dr. Mitchell, in Professor Halsted's clinic, a second case (also reported in *Progressive Medicine*), in which the gangrene of the foot and leg followed rapidly after a simple comminuted fracture of the lower third of both bones of the leg. The patient had fallen a number of feet, and had apparently landed on the foot of the fractured leg. There was very little deformity. The fracture was put up in plaster by Dr. Mitchell. A few hours later the patient complained of pain, as if the dressing were tight. The plaster was at once cut down, but it was found that the dressing was not producing constriction. A few hours after the injury it was noted that the foot was not cold. Thirty-six hours later the patient had fever, temperature 103° F.; the foot was cold; there was beginning anesthesia, and no pulsation in either tibial artery. Fever continued, with pain, but no swelling. The leg was simply cold and anesthetic. The anesthesia extended up into the lower third of the leg. The patient was colored. For this reason it was difficult to make out a line of demarkation. On the fourth day the leg was amputated. Both tibial arteries were thrombosed down to the seat of fracture; below this the arteries were free. Thrombosis extended beyond the point at which amputation took place. There was pulsation, however, in the popliteal artery. Unfortunately, no direct examination was made of the condition of the coats of the arteries at the point of beginning of the thrombosis. There was, however, no rupture of the entire arterial wall, nor any extravasation of blood. Clinically, this case was a direct demonstration of tthe rupture of the inner coats of the arteries as a cause of gangrene similar to cases reported by Hertzog. In Mitchell's case there was no evidence of infection, yet there was fever. This fever has been noted by all observers. It was present in my own case. Here, although the temperature was 104° F., leucocytosis was only 8000. Cultures from the blood and tissues from the popliteal space and leg were sterile. We attributed the fever to fibrin ferment. These cases are rare; in fact, the two cases which I have just spoken of are the only two which have been carefully observed or recorded in Professor Halsted's clinic among some 10,000 admissions. The possibility, however, as stated before, should be borne in mind by every surgeon. Given any injury of either extremity, one should at the first examination carefully note any arrest of the pulsation of the vessels and the sensation of the skin. The examination should be repeated from time to time for the next few days. The moment cessation of the pulsation of the peripheral arteries is noted, or there is any anesthesia, the possibility of a ruptured artery and thrombosis should be borne in mind. It is not yet settled, but it is the opinion of the authors just cited that in such instances the earlier one makes the exploration, turns out a hemotoma, if present, ligates the vessel and relieves tension the better the chances of collateral circulation and the better the chances to save the leg from gangrene.

A CASE OF CANCER OF THE ESOPHAGUS WITH PERFORATION INTO THE LEFT PLEURAL CAVITY; DEATH FROM PYO-PNEUMOTHORAX.

By Julius Friedenwald, A.M., M.D.,

Clinical Professor of Diseases of the Stomach, College of Physicians and Surgeons, Baltimore.

PRESENTED AT THE MEETING OF THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION, AT WASHINGTON, JUNE 2, 1900.

Mrs. J. H., married, aged thirty-one years, first consulted me on October 15, 1899. Her family history was good. Her father had died of an accident; her mother is still living, as are likewise all of her brothers and sisters. She had always been in good health until the end of July, when difficulty in deglutition was first noted. This difficulty was at first noted only with solid food, and finally about the middle of September there was absolute inability to swallow solids, while even liquids were now passed into the stomach with difficulty. Recently the act of deglutition was accompanied with great pain; there was frequent regurgitation of mucus, but never of blood; there were constant eructations, and there was obstinate constipation.

On examination, the patient is found to be a well-nourished woman, with well-delevoped muscles; glands are nowhere enlarged; the mucous membranes are red; the heart and lungs normal; the examination of the abdomen is negative. The blood examination shows 5,000,000 red-blood corpuscles and 10,000 white; the urine is normal. In introducing the soft tube a resistance was felt, through which the tube could not be passed. When measured this was found to be 43 cm. from the teeth. Various sizes of soft rubber tubes were tried, but could not be passed through the stricture. The hard rubber tubes were then introduced. The large-sized bougies could not be passed into the stomach, but those of small size were passed without difficulty. The obstruction was constantly located at from 42 to 45 cm. from the teeth. The second deglutition murmur was delayed often to forty seconds, and at times was entirely absent.

The patient was seen frequently, and constantly complained of pain in swallowing, and of great difficulty at times in getting even the smallest quantity of milk into the stomach. The small-sized bougies were now (November 15, 1899) passed with great difficulty, and at times could not be passed at all. Dr. Osler saw the patient with me on November 18, and advised gradual dilatation with olivary bougies. This was practiced almost daily, but without avail; even the smallest olive could not be passed through the stricture at times.

CANCER OF THE ESOPHAGUS.

The lower line points to the cancer; the upper line to the perforation.

The patient was yet in good general health, and was not cachetic, and there were no enlarged glands.

A hard rubber stomach tube of very small caliber was given the patient, through which milk could be passed into the stomach on those days on which she was unable to swallow anything. On December 2, 1899, Dr. Osler again saw the patient with me, and we then concluded to have a gastrostomy performed.

The patient was admitted to the Union Protestant Infirmary on December 11, 1899, under the care of Dr. J. M. T. Finney. On December 12, 1899, Dr. Finney attempted to pass a small-sized bougie under ether anesthesia, but was unable to pass it into the stomach; a gastrotomy was then performed, and a small olive sound passed from below, when an obstruction was discovered 10 cm. above the cardiac orifice of the stomach; the bougie was passed through the strictured area, a string was attached to it and withdrawn, and larger sounds were then drawn through from below attached to the cord, until the largest passed with ease. In passing the first or second sound something was felt to give way. The stomach was sutured to the abdominal wall and closed.

The patient did well until the morning of December 16, 1899. Her temperature had remained between 99° and 101°, and her pulse 100 to 108, and she was able to retain small quantities of egg albumen, milk and broth. On the morning of December 16 she complained of intense pain in the left chest. There was marked dyspnea, and during the afternoon the temperature rose to 103.4° and the pulse to 140. Dr. Pancoast, the resident physician, at once discovered a pyo-pneumothorax in the left chest, and aspirated a quart of brownish pus.

At 12 A. M. the next morning Dr. Finney resected a rib at the angle of the scapulae, when a large amount of foul-smelling pus was evacuated; a drainage tube was introduced. The patient never rallied; her temperature rose to 104° and her pulse to 160, and she died early the same morning.

Only a limited autopsy through the back wall was permitted, and the finger was passed from this opening into the esophagus through the perforation. A portion of the esophagus containing the cancer was removed. It consisted of an oblong ulcerated mass, the largest diameter, 1½ cm. in length, being longitudinal to the esophagus, its shortest diameter being 0.5 cm. in length. The circumference of the ulcer was very hard and indurated, the base soft and dipping deeply into the mucosa; along the inferior surface of the ulcer the opening was found indicating the point of perforation. In placing the esophagus in its normal position an almost complete obstruction is presented at the point of stricture. Microscopically, the mass was found to be an adeno-carcinoma.

This case is interesting as showing one of the rather rare results of cancer of the esophagus.

I am indebted to Dr. Pancoast, resident physician of the Union Protestant Infirmary, for the report of the case while the patient was at the hospital, as well as for the post-mortem examination.

REPORT OF A RARE CASE OF MONSTROSITY.

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EXHIBITED BEFORE THE MEDICAL SOCIETY OF THE COLLEGE OF PHYSICIANS AND SURGEONS, AND PLACED IN THE COLLEGE MUSEUM.

THE subject of animal teratology—the morphological science treating of malformations and monstrosities—has within recent years received much attention by careful observers, who succeeded, according to their views, in establishing the principles governing these abnormalities upon a strictly scientific basis. With regard to the etiology, it may be said, without reserve, that there has been a longer record of superstition identified with it than with any other condition or disease.

Of the three most commonly alleged causes, viz., maternal impression, mechanical impression, and injury to ovum, the former was practically the only one receiving recognition prior to the present century. Indeed, it is remarkable that such an inexplicable and illogical theory should have been accepted by all races and peoples for nearly 4000 years. The earliest record illustrating the antiquity of this belief is made in the Bible (Gen. xxx). The older writers frequently referred to it. The subject has gained entrance into fiction through the minds of such men as Goethe, Scott, Dr. Holmes, Dickens, Read and Hawthorne. Herbert Spencer was firmly convinced that there was some truth in it. With such strong expressions of opinion in favor of maternal impression, it is but natural to suppose that investigators felt loath to take up the scientific side of the question. This, however, has been done, and we now have a clearer conception of how and why these changes take place, and are prepared to offer a more rational explanation for the relation existing between the cause and the effect.

It is mostly in the embryonic period, *i. e.*, in the first three months of intrauterine life, that the deviations from the natural course of development occur, which, ultimately, at the time of birth, result in monstrosities. However slight these early traces of deviations may be, at the end of the period of fetal life they may have attained proportions of a sufficient degree to be markedly deformed.

For purpose of description monstrosities may conveniently be divided into two distinct and separate groups:

I. Monstrosities from defect of single parts.

II. Monstrosities from failure of union of contiguous laminae.

Redundancies are quite common in the first group, the simplest form being that of the sixth digit. Other forms are an extra rib or an extra vertebra; if the coccygeal, it may present the appearance of a rudimentary tail. Of the soft structures the supernumerary nipples are by far the most common.

It is the second group that especially interests us in this report.

In this group may be classified many of the commonest varieties, as well as practically all the varieties of the rarer and more serious forms of congenital malformations. To get a more definite appreciation of this group of monstrosities it is necessary to acquaint ourselves with a certain transition in the course of the development of the embryo. Originally the embryo is a circular, flattened disc spread out on one pole of the yolk. This is formed into a cylindrical body with four appendages. The free margins of the disc (ventral laminae) fold inwards to meet in the middle line, forming the ventral canal, and so close in the pelvic, abdominal, thoracic, pharyngeal and oral cavities. In the meanwhile, two parallel

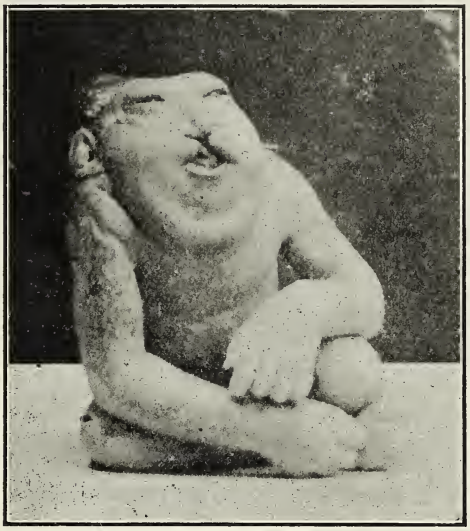

FIG. 1.
SHOWING HARELIP, CLEFT PALATE AND ACRANIA.

longitudinal ridges have grown up on the back and united in the middle line, in a similar way, to form a second canal—the neural canal. The lower three-fourths is of uniform size; the upper fourth expands out into a wide chamber for the reception of the brain. All vertebrates develop in this manner. In the event of any portion of these two embryonic lines of junction failing to unite, monstrosities of various degrees may result.

The most familiar form, harelip, with or without cleft palate, is the result of a defective closure of the extreme upper end of the ventral laminae. A gap in the lower end of the neural canal leaves a deficiency in the lumbar vertebral arches, through which the membranes of the cord protrude, containing spinal fluid, causing the condition known as hydrorrhachis, which is dependent upon

the osseous defect—spina bifida. When this occurs in the upper vertebrae the skull, too, may be involved; indeed, the entire calvarium may be absent (acrania), as also the brain and its membranes (anencephalus).

An extremely rare condition is the association of acrania or a partially-developed vertex with encephalon (encephalocele).

Even a rarer phenomenon is the association of a brain containing large fluid spaces, distended ventricles, with acrania (hydrencephalocele). It cannot always be attributed to want of formative power to close the neural canal. The spaces in the cord and brain containing fluid may become overdistended, and thereby prevent the closing of the skull. Congenital hydrocephalus is brought

FIG. 2.
SHOWING ACRANIA, HYDRONCEPHALOCELE AND SPINA BIFIDA.

about in this manner, only here the neural laminae unite properly in the median line, and the ventricles of the brain are enormously distended with fluid.

Innumerable experiments on eggs of fishes, birds and insects furnish abundant evidence corroborative of this view. Ova of certain fish have been proved to be especially apt to produce malformed young. If an egg be inverted so as to place its germinal portion in an unnatural position the chick will be deformed, and if similarly treated during the period of incubation distinct evidence of the abnormal position of the egg will be shown in the chick. Other agencies that will tend to produce malformations are: (a) violence, such as in transit, or when purposely disturbed during

the process of incubation; (b) direct mutilation of the ovum; (c) injuries to amnion and sac; (d) temperature above 42° or below 41° Centigrade; (e) improper supply of oxygen, etc.

These and many other experiments, together with our present knowledge of embryology, will lead one to conclude with Lewis (*American Journal of Obstetrics*, July, 1899) that "All malformations and monstrosities can be explained by purely mechanical and physical causes entirely remote from psychic influence, so that there is never any reason to invoke the mysterious or supernatural to explain natural phenomena."

The case I report occurred in my own private practice. It belongs to the anatomical category, which characterizes the second group of cases.

The mother, aged twenty-five years, III para, had always enjoyed good health until the summer of 1898, when she had an attack of typhoid fever. Her first labor (May 13, 1898) was strictly normal and at full term. Every feature of the child, which is now living and in good health, is perfect. The second was a miscarriage, April 20, 1899, in the fourth month of pregnancy, the fetus showing no signs of malformation. At her last parturition, February 3, 1900, the end of the seventh month of pregnancy, she gave birth to this remarkable monster. The family history in this regard is absolutely negative on both sides. There is positively no evidence of maternal impression.* She has not been able to recall one incident which transpired during her period of gestation that could possibly have had any influence upon the child. She suffered a great deal from sympathetic disturbances, but there was nothing extraordinary in this respect. She sustained no injury, nor has she had any intercurrent disease.

The child was still-born; the position and presentation were not definitely ascertained on account of hydramnios and the sudden spontanenous delivery after a few vigorous uterine contractions. This specimen, as you see well illustrated in the figures,† presents all the combined features of harelip, cleft palate, acrania, hydrencephalocele and spina bifida, an extremely rare and curious combination. The child, female, weighs 219 grams, measures 27 cm. in length, and 24 cm. in circumference of the body. In Fig. 1 the most striking condition is the absence of the cranium, or more particularly, as seen in the picture, the absence of the cranial portion of the frontal and parietal bones. The harelip and cleft palate are also very well shown. The eyes, forming the uppermost part of the head stand out prominently. The eyeballs are bulging, so that the lids do not properly close. The nose is broad and distinctly flattened. The neck is not well defined; in fact, morphologically speaking, one may say it is entirely absent, the head being an integral part of the body. In place of the restricted portion,

*Dr. W. T. Watson exhibited a child with a caudal appendage before the Johns Hopkins Medical Society which was born about the same time, and in which he also failed to get a history of maternal impression.

†The figures have been reproduced from photographs taken by Dr. S. Butler Grimes.

there is a very decided elevation, due to a large crescentic fold under the chin extending back over each shoulder. The right ear, relatively large, is fairly well formed, and rests upon the shoulder.

Fig. 2 shows the hydrocephalic brain and the cord and their membranes exposed and unprotected by osseous structure. The general contour and outlines approach very nearly those of a normal brain, having two distinct hemispheres separated by the longitudinal fissure. Each hemisphere is again subdivided by fissures into lobes. The left is somewhat smaller and less characteristically developed.

The longest transverse diameter of the brain is 7.5 cm.; the antero-posterior is 5 cm. The circumference at the base measures 20 cm. A flat circular plate of bone 2.5 cm. in diameter is imbedded under the membrane in the upper, outer and posterior quadrant of the right hemisphere. This is the only evidence of ossification in the calvarian bones.

The cerebral meninges almost unite at the base, forming a pedicle by which it is attached to the base of the skull, and is continuous with the spinal meninges.

In both hemispheres the ventricles are distended with fluid, which may be expressed through a common duct the size of a small goose quill, opening externally at the base in the median line.

The foramen magnum is entirely absent. The vertebral arches are deficient from the above down to the lower dorsal region. The interspace, 2.5 cm. wide, forms a broad, flattened surface, which supports the cord and its membranes. The rest of the body and the extremities are apparently normally developed.

COCAINE ANESTHESIA IN LABOR.

S. MARX (*Medical News, August 25*) reports five cases in which he employed the subdural injections of cocaine as an anesthetic in labor. He did not, in these cases, observe any of the severer complications noted by Tuffier and Kreis, though nausea, headache, rise of temperature, chilly sensations, were observed. One of his cases accidentally proved a good control case, as against the influence of suggestion. In this case no effect followed the injection of one-sixth grain of cocaine. A second injection forty minutes later was equally futile, and resort was had to chloroform. The solution used in this case was later found, by test, to be inert. In three of the cases labor was completed without pain, and a normal puerperium followed. In one case manual dilatation was done under cocaine, the head being above the brim. The labor was concluded on the following day, without any anesthetic, and was of ordinary severity.

Current Literature.

MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

THE X-RAYS IN DIAGNOSIS AND THERAPEUSIS.

RECENT PROGRESS IN *x*-RAY METHODS OF DIAGNOSIS.—DIAGNOSIS OF DISEASES OF THE LUNGS BY THIS MEANS.—DIAGNOSIS OF ESOPHAGEAL DIVERTICULA BY THE *x*-RAYS.—THE THERAPEUTIC VALUE OF THE *x*-RAYS IN DISEASES OF THE SKIN, ESPECIALLY IN LUPUS.—THE ANALGESIC EFFECTS OF THE *x*-RAYS.

RECENT PROGRESS IN THE ROENTGEN-RAY METHODS OF DISEASES. Leonard. *Journal of the American Medical Association*, 1900, July 21, p. 147.

Leonard, the recognized authority in America on the use of the Roentgen rays as an aid to diagnosis, furnishes in this article an extremely valuable *résumé* of what this method can and what it cannot do in the diagnosis of medical and surgical diseases. After giving a brief description of the methods employed, he accentuates the absolute necessity of the observer being versed in the mechanism of the apparatus, and being capable of selecting the proper state of vacuum (told roughly by the length of the equivalent spark-gap in air), and he severely criticises the unjust ideas held by some regarding the inaccuracy of the apparatus, calling attention to the fact that this is not due to the faults of the machine, but to the incompetency of the observer.

As an aid to ANATOMY, the *x*-rays are extremely valuable; not only can the form of the various bones, their methods of juncture and the mechanism of the motion of the various joints be studied, but by the injection, post-mortem, of opaque fluids into the blood-vessels, lymphatics, sinuses or cavities of the body their exact position can be absolutely determined. The detection of *foreign bodies* is greatly facilitated by these means; not only can an absolutely accurate localization be made, which is of inestimable aid to the surgeon, but the diagnosis can be practically coinstantaneous with the injury in many cases, which is of the greatest importance under certain circumstances, notably in the case of foreign bodies in the eye, about which, unless removed shortly after the accident, dense adhesions form, which render the removal much more difficult and dangerous.

The diagnosis of FRACTURES has been made markedly easier by the use of the *x*-rays, and in many cases fractures entirely unsuspected, and often absolutely impossible to be diagnosed in any

other way, have been determined by this means, and the proper treatment employed. Especially valuable, however, are the Roentgen rays after the fracture has been treated, enabling us to tell whether the position is good, whether the dressing is efficacious, and whether immobility is perfect, thus saving the patient the frequent removal of dressings, with its disturbance to the healing process.

Besides the positive value of the *x*-rays, we must not forget their negative value in absolutely determining that no fracture or no foreign body is present in suspected cases.

In ORTHOPEDIC surgery the *x*-rays are of great service in determining the site of the disease, and its extent in diseases of the hip, the extent of the deformity and the amount of rotation in special diseases, and the predetermination of the exact osseous deformity in any especial case.

In the diagnosis of ANEURISMS, the *x*-rays have proved themselves invaluable in certain cases, especially those that lie too deep to be detected by other means. "Their pathognomonic expansile pulsation can be seen upon the fluoroscopic screen, and the increase or decrease in their motion noted, as indicated by a thickening of their walls, and as a progress toward increase or recovery." Especially valuable is the use of these means in absolutely excluding aneurisms in various deep-seated growths of doubtful nature.

Of course, the great disadvantage of the fluoroscopic examination (as compared with the photograph taken with the *x*-rays) is in the fact that the image is but a transient one, it cannot be mechanically reproduced, and its interpretation depends entirely upon the observer's impression, as it is impossible to compare it with any fixed standard.

Leonard does not lay much stress upon the use of fluoroscopic methods in the early diagnosis of PULMONARY TUBERCULOSIS, regarding their chief value in this connection as a confirmation of other methods of diagnosis. It is, however, in relation to the diseases of the urinary tract, especially as regards the detection of *renal, ureteral* and *vesical calculi*, that the use of the *x*-rays, especially in the hands of Leonard, have proven of such inestimable value. As everyone knows, if a renal calculus is removed shortly after its formation (and before infection has set in) there is but little destruction of kidney tissue, and the patients will suffer but slightly from the operation, while if the operation is delayed (usually on account of the difficulty in arriving at a correct diagnosis), not only will a large portion of valuable renal tissue have been destroyed, but usually a pyelitis of high grade will have engrafted itself upon the nephrolithiasis, and, even after the operative removal of the stone, will refuse to yield to treatment. Besides which, the mortality of the delayed operation is almost ten times as great as if the operation were performed shortly after the beginning of the formation of the stone.

Briefly summed up, the value of the Roentgen rays in lithiasis (renal and ureteral) is, 1st, it renders possible an extremely early diagnosis; 2d, it localizes definitely the position of the stone, thus facilitating greatly the subsequent operation and minimizing the amount of trauma to be undergone by the organ in which the stone is situated; 3d, it determines whether more than one stone is present, a point of the greatest importance, as most surgeons, after finding one stone, are only too willing to ascribe to it, and to it alone, the cause of the trouble, and to close up the incision as rapidly as possible; 4th, it shows whether the other kidney does or does not contain a calculus; 5th, it sometimes renders possible the diagnosis of hydronephrosis or pyonephrosis, either associated with stone or alone, by the difference in the density of the shadows formed; 6th, by its means we may absolutely exclude stone, and thus avoid the operation which has been done in so many suspected cases, only to find that the diagnosis was a wrong one and the operation utterly unnecessary.

When we consider the number and variety of pathological conditions that can simulate attacks of renal colic due to calculus, as, for instance, various inflammations of the kidney, new growths or tuberculosis of the kidneys, floating kidney, and a long list of diseases in the organs adjacent to the kidney, the value of the last point is at once seen. Thus, Morris has reported forty-four cases in which he operated for stone and found none.

In *vesical calculus* the results are no less definite, although of less value, as we have other means of carefully determining the presence or absence of a stone in this organ, and yet, although the *x*-rays have already become a most valuable aid in diagnosis to both the physician and the surgeon, all look forward to an ever-increasing field of its usefulness in diagnosis, with the ever-increasing improvement in the instruments used and in our widening knowledge regarding the interpretation of the results obtained.

DIAGNOSIS OF DISEASES OF THE LUNGS BY THE *x*-RAYS.

WILLIAMS (*Medical News*, 1899, LXXV, 12) differs from Leonard as regards the usefulness of the *x*-rays in the early diagnosis of pulmonary tuberculosis. He has examined 165 cases by this method, and reports a number in which the diagnosis was probable, but not positive by the other methods employed, in which the use of the *x*-rays markedly increased that probability by demonstrating distinctly increased resistance to the *x*-rays of the lung tissue at one apex or the other. According to Williams, the disease begins more frequently at the right than at the left apex.

TYSON (*Transactions of the Philadelphia County Medical Society*, 1899, XX, 8) also reports cases in which the diagnosis of pulmonary tuberculosis was either definitely determined for the first time or substantiated by the use of the *x*-rays, Tyson preferring fluoroscopy to radiography.

STEMBO (*Deutsche Medicinische Wochenschrift*, 1899, XXV, 28, 29) has used the *x*-rays successfully in the diagnosis of *hydropneumothorax*. The characteristic *x*-ray picture in this condition is the marked transparency of that portion of the chest where the pneumothorax is situated, under which is seen a distinct deep shadow, corresponding to the exudate, which shadow rises and falls with the respiration, with a wave-like movement of the upper limit of this shadow coincident with the movements of respiration, coughing, and, if on the left side, even with the movements of the heart.

ESOPHAGEAL DIVERTICULUM DIAGNOSED BY THE *x*-RAYS.

BLUM (*Wiener klinische Wochenschrift*, 1900, March 15) reports an interesting case where a diverticulum of the esophagus was diagnosed by the *x*-rays after the failure of other means—esophagoscopy, etc. The symptoms were those of obscure esophageal disturbance with eructation of food. The method of arriving at the diagnosis was as follows: A tube, filled with mercury, was introduced into the esophagus and arrested in its course before it reached the stomach. Examination with the Roentgen rays then showed that the tube lay alongside the spine in such a way as to suggest a diverticulum. The presence of the diverticulum was made certain by the introduction of a sound filled with bismuth, after which its exact position, shape and size were determined by passing in a toy balloon filled with a solution of bromide of potash, which is impervious to the *x*-rays. This method undoubtedly will prove of value in the diagnosis of obscure cases of esophageal diverticula.

THE THERAPEUTIC VALUE OF THE *x*-RAYS IN DISEASES OF THE SKIN.

Within the past two years various reports have been made suggesting that besides their aid in diagnosis, the *x*-rays might possibly prove of therapeutic value. As would naturally be expected, it is from the specialist in skin diseases that most of these reports have come, as on the skin the *x*-rays may be made to strike directly without having previously to penetrate other tissues. Recently, however, their use has also been suggested in pulmonary tuberculosis, neuralgia and rheumatism, the reports of which cases, however, have been so few and so incomplete as to lead to no conclusions whatever.

Freund of Vienna was one of the first to report a dermatological case in which a cure was effected by means of the *x*-rays. The case was one of thick-haired nevus pigmentosus pilosus, for which all the previously-employed methods of treatment had proven absolutely unavailing. The spots were exposed two hours daily to the *x*-rays, and in twelve days' time the hair commenced to fall out in great tufts, so that within a short time the irradiated spot was quite hairless, although, unfortunately, a violent cutaneous inflammation was set up by too long irradiation.

SCHIFF (*British Medical Journal*, 1900, May 5, p. 1082), however, was apparently the first to apply the *x*-rays generally to the treatment of severe skin affections having their seat in the deeper layers of the cutis, his work being inspired by the observations of Freund mentioned above.

His first case successfully treated by this method was one of lupus vulgaris in a young girl, who for years had been treated in vain with Koch's lymph, with other medicaments, and by surgical procedure. In this case daily treatment was done for two months before a complete cure was obtained.

According to Schiff "the influence of the *x*-rays on the skin consists, first, in a relaxing effect on the deep vessels of the corium —an effect with which is certainly associated a slight exudation into the tissues of the epidermis and cutis. This process causes a swelling of the hair papillae on hairy parts of the body, and consequently also the detachment of the hair bulbs. In cutaneous affections, with inflammatory infiltration and new growth of young tissue, the cellular formative elements are altered in their molecular composition, and thus prepared for absorption. Whether the *x*-rays operate injuriously on the micro-organisms, or whether it is only that phagocytosio, becoming more pronounced under the inflammation, proves serviceable in parasitic affections of the skin, has not yet been determined."

The conditions in which the *x*-rays are indicated are, according to Schiff, abnormal growth of the hair, and all cutaneous diseases prolonged by the absence of hair, as sycosis, favus, wounds of the hairy parts of the body, and trichorrhexis nodosa, furunculosis, acne, lupus vulgaris, lupus erythematodes, eczema, and elephantiasis.

The method employed by Schiff is as follows: The Roentgen tube, at 15 cm. from the skin, is so placed that the anticathode stands exactly opposite and parallel to the irradiated field. Sittings are daily held, lasting at first five, later on ten to twenty minutes. The parts not to be irradiated must be protected with pasteboard sheets covered with lead. As soon as the skin appears turgid or shows a pale pink or brownish tint, or when at the place in question the hair becomes loose, then the irradiation of this part must be stopped. This is the case with hypertrichiosis after from seventeen to twenty-five sittings, and with sycosis and favus after from seven to thirteen. After a cure has apparently been brought about a long after-treatment, three to five sittings, held at intervals of from four to eight weeks, should be insisted upon to prevent all possibility of recurrence.

SCHOLEFIELD (*British Medical Journal*, 1900, May 5, p. 1083) reports an interesting case of lupus treated by this method. The patient was exposed to the *x*-rays for ten minutes every other day for a period of four months, by which time a complete cure had been accomplished. Scholefield calls attention to the similarity between these results and those obtained by Finsen, who used the

ultra-violet, or photo-chemical, rays in the treatment of various diseases, and asks if these rays and the therapeutic rays from the Roentgen tube may not be identical. He also suggests the possibility of successfully treating pulmonary tuberculosis in the near future either with concentrated *x*-rays or concentrated sunlight.

HALL-EDWARDS (*Edinburgh Medical Journal*, 1900, February) reports two cases of lupus vulgaris and one of lupus erythematosus treated with *x*-rays. The rather unsatisfactory results obtained by him seem in all probability to be partly, if not largely, due to too long and too frequent exposure, and to the too close proximity (two inches) of the Crookes tube to the affected spot.

HAHN and ALBERS-SCHONBERG (*Münchener medicinische Wochenschrift*, 1900, February 27) report twelve cases of lupus treated by this method. All of these were greatly benefited, and in seven a permanent cure was probably effected, although the time between the cessation of treatment and the publication of their article, from nine to eighteen months, is too short to exclude the possibility of relapse. The number of applications of the rays varied between fifty-five and fifty-eight. The authors call especial attention to the enormous variation in the degree of reaction to the rays in different individuals.

In some of the cases treated and cured by Hahn and Albers-Schonberg the disease had lasted for twenty years, and had absolutely been resistent to all forms of treatment, so much so that in some cases it had advanced far enough to cause perforation of the nasal septum or deep destruction of the parts.

ZARUBIN (*Monats. f. Prakt. Dermatol.*, 1899, XXVIII, 10) comes to the following conclusions regarding the influence of the *x*-rays upon the healthy and diseased skin: (1) In dermatotherapy the *x*-rays are of great value in lupus vulgaris especially, also in chronic eczema, in the removal of hair from nevi, and in certain cases of varicose leg-ulcers, acne vulgaris, lupus erythematodes, hypertrichosis, favus, psoriasis, elephantiasis, and ephelides; (2) in using the *x*-rays various pathological changes in the skin may be set up, especially various grades of dermatitis (complicated with necrosis, abscesses, etc.), alopecia, and in some cases darkening and drying of the skin.

THE ANALGESIC EFFECTS OF THE *x*-RAYS.

STEMBO, (*Therapie d. Gegenwart*, 1900, 6) in his work for the past two years with the *x*-rays in the diagnosis of various diseases, was especially struck by their analgesic effect in certain cases, especially in cases of severe pain in the chest, back or joints. Stembo, therefore, started to systematically employ the *x*-rays in the treatment of a series of cases suffering with neuralgia of various kinds. Of the twenty-eight cases so treated, twenty-one were cured, four benefited, and only three unaffected by the treatment. The necessary number of treatments usually was about ten, each sitting lasting from three to ten minutes. He does not believe that suggestion played any *rôle* in effecting these cures.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

THIRTEENTH INTERNATIONAL CONGRESS OF MEDICINE,

PARIS, AUGUST 2-9, 1900.

SECTION OF URINARY SURGERY.

CONSERVATIVE OPERATIONS IN RENAL RETENTION. Christian Fenger.

Remittent or beginning retention (and all retention is, in its early stages, as a rule, remittent) is a condition in which we should always consider the possibility of saving kidney tissue by re-establishment of the free passage of the urine.

The obstruction may be located in the calyces, in a branch of the ureter, in the bottom of the pelvis, or origin of the ureter, or in the ureter.

Obstruction in the first two locations causes a local or partial cystonephrosis, and demands, for the relief of the condition, bisection of the kidney from its convex surface, and division of the partition walls.

Stenosis at the exit of the ureter (valve-formation, oblique implantation from unilateral dilatation) requires operations which vary in accordance with the absence or presence of stricture at the upper end of the ureter.

If there is no stricture at the upper end of the ureter the valve-formation may be overcome by a transpelvic operation (Fenger, Mynter, Trendelenburg, Küster), or by extra-pelvic operation, which Fenger prefers.

If there is a stricture of the ureter at its exit from the pelvis, as may be expected in infected cases, we may resort to extra-pelvic, plastic operation (Fenger), or to resection of the strictured end of the ureter, implantation of its upper divided end into the pelvis (Küster).

If the stenosis or obstruction is located in the ureter it must be dealt with according to the laws laid down for surgery of the ureter, namely, resection and reimplantation, or Fenger's plastic operation.

Are the results of these, so to speak, tentative, conservative operations permanent, or does relapse eventually occur?

In five of my cases no relapse occurred:

(1) Valve-formation, transpelvic operation: No relapse six years later.

(2) Stricture, upper end of ureter, extra-pelvic operation: No relapse six years later.

(3) Valve-formation of lower branch of ureter, extra-pelvic operation, bisection of kidney, division of partition wall: No relapse three years after.

(4) Excision of valve in ureter by my plastic operation: No relapse after three years.

(5) Stone in upper end of ureter removed by me. One year later plastic operation on ureter by another surgeon; six months later complete occlusion of ureter at site of second operation—my plastic operation: No relapse after one year.

In two cases relapse occurred:

(1) Valve-formation without stricture, intrapelvic operation, relapse of stenosis, occlusion of pelvic orifice: Nephrectomy one year later.

(2) Patient operated on by another surgeon; later on by myself. Operation was incomplete, failed, and nephrectomy was finally necessary.

THE SECTION OF GENERAL SURGERY.

Surgery of the Pancreas. Andrea Ceccherelli.

The following are the conclusions which we can draw today from the careful study of all questions that concern the surgery of the pancreas:

1. Surgical operations on the pancreas are in direct relation to all questions regarding the function of this organ.

2. Emaciation, the presence of greasy matter in the stools, sugar in the urine, a bronze tint of the skin, jaundice and pain are the symptoms which usually accompany pancreatic affections.

3. Considerable difficulties are encountered in complete extirpation, because of the anatomical structure of the pancreas, the depth of its position, its intimate relation to other viscera, its richness in vessels and nerves, and the fact that it discharges a juice important to digestion.

4. Surgery of the pancreas has not advanced as far as was hoped for from the progress obtained in visceral surgery, because very often even the diagnosis is difficult, and for this reason the morbid process is rarely attacked at the beginning. At the present time the preponderance of opinion is in favor of attacking the tail rather than the head of the pancreas.

5. Experiment proves that removal of the pancreas is possible and compatible with the life of an animal. It has also been proven that this can be done with man, although positive cases are few. The longer the morbid process continues the less apt it is to be confined to the pancreas alone; finally it assumes the characteristics of a malignant tumor, and is followed by infiltration of the neighboring tissues.

Extirpation is not advisable if a tuberculous or syphilitic process is diagnosed. Partial removal should be performed, so as to leave one of the two canals, provided that Santorini's canal is not left free.

6. Cysts are the most frequent tumors of the pancreas. These can be hemorrhagic following trauma, or apoplexy, or retention cysts, or hydatid.

In the latter intervention is justifiable and beneficial, but complete removal of the organ is not necessary. If possible, total extir-

pation of the sac should be done; if not, piece-meal excision is sufficient.

Upon the extirpation of the sac may rest the question of opening Wirsung's canal, and of the probable leakage of pancreatic juice into the abdominal cavity. In incising the sac it is prudent, if possible, to suture the cyst walls to the abdominal walls, and under the other condition to suture with care, being sure that the cavity where the cyst was is completely closed.

7. In the case of pancreatic calculi, surgical intervention is necessary for their removal.

8. Necrosis of the pancreas, which has been quite recently carefully studied, demands surgical intervention for the removal of necrosed fragments.

9. In suppurative or gangrenous pancreatitis it is the rule not to operate during the acute stage; but later, if there is an abscess or gangrene of the pancreas, the knife is necessary, and there are three ways from which to choose—either the lumbar route outside of the peritoneum, or transpleural, or in the midline just above the umbilicus. Pus must be evacuated, and where infiltrated or necrosed a portion of the pancreas should be removed.

10. Chronic pancreatitis can engender complications by pressing on the bile duct or on the pylorus, but in this case the surgeon interferes not with the pancreas, but with the liver or the stomach, in order to anticipate functional lesions from compression.

11. In hernia of the pancreas following wounds, reduction, and even fixation, can be accomplished. The thoracic route is preferable if the hernia is diaphragmatic.

12. Contusions and wounds of the pancreas demand operation, especially if there is hemorrhage. The bleeding should be stopped either by suturing or ligating the wounded vessels. All blood clots found in the abdominal cavity must be removed.

13. Experimental pathology justifies the fixation of a movable pancreas.

14. The surgeon can, and ought to, intervene in invagination of the pancreas, if the process of straightening out is not otherwise accomplished.

15. If the opening of the pancreatic canal into the duodenum is stopped up a new one can be created for the juice, or a fistula may be established.

16. Not only wounds, but some diseases, especially gangrene of the pancreas, cause hemorrhages. This should be looked after just as the traumatic hemorrhage.

17. Sutures through the parenchyma of the pancreas do not interfere, and are tolerated as in the kidney, liver and spleen.

18. Should the pancreatic canal be wounded an end-to-end suture, as in the intestine, should be employed, being careful that the thread does not pierce the lumen of the canal, thus avoiding the formation of calculi.

19. Union of pancreatic wounds is formed by proliferation of pre-existing cells, and especially by connective tissue.

20. It is certain that there is a regeneration of pancreas.

21. After complete extirpation of the pancreas a tremendous development of the glands of Galeat takes place, and especially a karyokinetic increase in the epithelium. According to the experience of Martinolli these would be sufficient to replace the excised viscus.

22. Leakage of the pancreatic juice into the abdominal cavity does not always give rise to a peritonitis, because absorption is rapid. Like bile, pancreatic juice may be inoffensive if healthy, and injurious if diseased.

23. In extirpation of the pancreas it is always necessary to be careful to ligate before the incision, in order to avoid hemorrhage and leakage of the pancreatic juice. Thermo-cautery or galvano-cautery cannot be used; they are not sufficient guarantee because of the danger from the falling off of the eschar, and because the irradiation can produce dangerous results in neighboring parts.

SECTION OF ORTHOPEDIC SURGERY.

THE OPERATION FOR CONGENITAL HIP-JOINT DISLOCATIONS. Hoffa (Würzburg).

1. In every case of congenital hip-joint dislocation the bloodless replacement should be tried first. When this fails for any reason, then the cutting operation is indicated.

2. In the selection of the operation the Hoffa-Lorenz replacement of the dislocated femoral head into a new acetabulum should be considered in children from five to eight years old.

3. The typical Hoffa-Lorenz operation should always be associated with the formation of a new acetabulum.

4. The typical Hoffa-Lorenz operation should not be performed too soon nor too late. The best age for the operation is from three to eight years.

5. The typical cutting operation may only be performed by surgeons who have perfect command of the aseptic method of wound treatment.

6. The danger of the operation is chiefly that of septic infection of the wound. This danger grows with the age of the patient and the greater difficulties of the replacement of the head in the acetabulum.

7. With the strictest asepsis, and performed between the fifth and eighth years of age, in strictest conformity with the rules prescribed by Hoffa-Lorenz, the open replacement is not a dangerous operation.

8. The wounds need not be sutured.

9. Great stress should be laid on a proper after-treatment for strengthening the muscles, with massage and exercise. Positive motion of great force must not be used.

10. Flexion contractures, with adduction, must be avoided by appropriate measures. Should such occur it may be successfully treated by a subsequent subtrochanteric osteotomy.

11. Ankyloses result only after suppuration of the wound or when the operation is done at too late an age. The outside limit for the performance of the open method of reduction is the tenth year in unilateral and the sixth to seventh year in bilateral dislocation.

12. A stiffening of originally movable joints need not be feared. Subsequent stiffening occurs only in older patients and in joints which primarily showed restricted mobility.

13. The Hoffa-Lorenz operation renders possible the healing of the congenital dislocation from both the anatomical and functional sense.

14. Complete recovery takes place oftener in unilateral than in bilateral dislocation. An aggravation of the condition after operation is excluded in the correct selection of cases and treatment.

15. The average time of healing after Hoffa's operation is about four months. The functional results gradually improve from the moment when the patient makes his first attempts to walk. At the end of a year the result may be considered definite.

16. No fears should be entertained on the score of a later restriction of growth of the pelvic ring in consequence of the new formation of an acetabulum.

17. In unilateral dislocations in patients who have passed their eighth to tenth year the subtrochanteric transverse (Kirmisson) or the oblique (Hoffa) osteotomy may be recommended. The subtrochanteric osteotomy is to be preferred in such cases to the open replacement of the femoral head without the formation of an acetabulum (Lorenz).

18. In bilateral dislocations of older patients Hoffa's pseudarthrosis operation yields excellent functional results.

* * *

The Comparative Germicidal Action of Some Disinfectants. Arthur H. Burgess. The *Lancet*, June 23, 1900.

The following antiseptic solutions were tested by the author: Biniodide of mercury, perchloride of mercury, chlorinated lime, formaldehyde, lysol, carbolic acid, izal, medical izal, Jeyes' sanitary fluid, Walker's I. X. L. disinfectant fluid, Condy's fluid, "sanitas" fluid, and boric acid.

Several platinum loops of bacillus coli communis in pure culture on potato were transferred to sterile peptone bouillon. In this emulsion pieces of finely-plaited sterilized silk, an inch long, were immersed for ten minutes, and then transferred with sterile forceps to Petri dishes for three hours. Next they were put in the disinfecting solutions for the required times, and then placed in sterilized peptone bouillon, after they had been thoroughly washed in sterile water. A growth was then looked for during the ten days following. If no growth appeared during this time the tubes were inoculated from an emulsion of the bacilli as prepared above. In every such case a growth was found at the end of twelve hours, proving that the bouillon in these tubes was a suitable medium.

We will tabulate the records only of the following:

WEAKEST STRENGTH OF SOLUTION NECESSARY TO DESTROY THE BACILLUS COLI COMMUNIS IN THE FOLLOWING TIMES.

Disinfectant.	1 minute.	Next strength tested that failed to destroy.	5 minutes.	Next strength tested that failed to destroy.	10 minutes.	Next strength tested that failed to destroy.	30 minutes.	Next strength tested that failed to destroy.	One hour.	Next strength tested that failed to destroy.
Biniodide of Mercury	1 in 1,000	1 in 1,500	1 in 5,000	1 in 7,500	1 in 20,000	1 in 25,000	1 in 80,000	1 in 100,000	1 in 200,000	1 in 250,000
Bichloride of Mercury	1 in 750	1 in 1,000	1 in 2,000	1 in 3,000	1 in 7,500	1 in 10,000	1 in 15,000	1 in 20,000	1 in 40,000	1 in 50,000
Chlorinated Lime	1 in 80	1 in 100	1 in 150	1 in 200	1 in 500	1 in 600	1 in 1,500	1 in 2,000	1 in 3,000	1 in 4,000
Formaldehyde	1 in 30	1 in 40	1 in 50	1 in 60	1 in 100	1 in 150	1 in 150	1 in 200	1 in 250	1 in 300
Carbolic Acid	1 in 10	1 in 20	1 in 40	1 in 60	1 in 80	1 in 100	1 in 100	1 in 150	1 in 150	1 in 200
Creolin	....	Undiluted	1 in 5	1 in 10	1 in 60	1 in 80	1 in 150	1 in 200	1 in 200	1 in 300
Boracic Acid	....	Saturated	....	Saturated	....	Saturated	....	Saturated	....	Saturated

Boracic acid has no claim to be regarded as a disinfectant.

NEUROLOGY.

Under the Supervision of Robert Reuling, M.D., Baltimore.

SENILE AND CARDIO-VASCULAR EPILEPSY. By Prof. Ferrucao Schupper. *Monatsch. für Psychiatrie u. Neurologie*, Vol. VII, No. 4, 1900.

This article is full of interest, and treats of epilepsy beginning at a period beyond middle life. It contains several cases which illustrate this form of epilepsy, and besides is full of interesting discussions and reviews of the works of various authors who have written on the subject. In this country the subject of senile epilepsy has received so little attention that a more lengthy review of Schupper's article seems warranted, and should be of interest, especially as the etiology of this class of cases is still so much in doubt that the subject should be more fully considered.

He begins his article by the following general consideration: "That epilepsy or similar convulsive states occur in senility is a fact which has been noted by authors in the first half of the century." But an analysis of these observations shows that they do not represent cases which would be classed at present as genuine epilepsy. In the last few years the attempt has been made to differentiate the cases of true senile epilepsy from those cases in which only symptomatic epileptiform convulsions were present. But as autopsies on several cases of senile epilepsy, which simulated true epilepsy during life, showed peculiar lesions which differed from those usually found in instances of epilepsy in younger individuals,

one comes to the conclusion that it would be best to accept under the term of "senile or late epilepsy" a distinct pathological process in which even the treatment differs from that of true epilepsy. Some observers associate the condition with congestive states of the cerebral cortex, others consider cardiac lesions to be responsible for certain anemic states of the cortex, while others hold that arterio-sclerotic changes are the causative factors. Others, again, believe the condition to be similar to true epilepsy, and associate it with the same pathological changes.

As to the frequency of senile epilepsy, opinions differ very much. This depends on the fact that it is often difficult to find out the time of the first convulsion, and in the report of cases this is often uncertain, more especially in instances occurring in feeble-minded individuals. If we examine the statistics of different authors we see that is it absolutely necessary to consider separately the work of older writers, and then of more recent ones. Of the first-named, Bouchet and Cazanville found among sixty-six cases of epilepsy one which had begun between the age of fifty and fifty-five (1.5 per cent.), and one case between fifty-five and fifty-six years (1.5 per cent.). According to Bean, in 210 cases, the disease began in five instances between fifty and sixty (2.38 per cent.), and once between sixty and seventy years (.947 per cent.). According to Leuret, the disease began in 106 cases six times between fifty-five and fifty-nine years (5.64 per cent.), and once between sixty-five and sixty-nine years (.94 per cent.). Hasse reports that in 995 cases the disease began thirteen times between fifty and sixty years (1.3 per cent.), and in four instances between sixty and seventy years (.4 per cent.). Reynolds says that in 172 cases of epilepsy the disease only developed twice before the forty-fifth year.

According to later statistics of Gowers, in 1232 cases the first attack occurred one to three times between the fiftieth and fifty-ninth years (.08 per cent.), twice within the sixty-second year (.16 per cent.), twice within the sixty-fourth year (.16 per cent.), and once within the seventieth year (.08 per cent.). In Berger's statistics, which include 105 cases, only one began between the age of fifty and sixty years, and one at seventy years (.95 per cent.) Dodd found among 100 cases one in which the disease began at fifty-seven years, and one in which it developed at sixty-two years. The statistics of Binswanger, which comprise 132 cases, do not include a single instance in which the disease began before the fiftieth year. The following percentage of cases of true epilepsy have been recorded in statistics as true representatives of the senile form:

Bouchet and Cazanville	3.00	per cent.
Bean	2.85	" "
Leuret	6.58	" "
Hasse	1.10	" "
Bowers	.64	" "
Berger	1.90	" "
Dodd	2.00	" "
Binswanger	0.00	" "

The figures of Binswanger depend partially on the fact that at the present time one goes into the previous history of cases more carefully, and also that cases of symptomatic convulsions are more clearly differentiated from cases of true epilepsy. At any rate, it is certain that the senile forms of epilepsy cannot be classed amongst the frequent forms of epilepsy, and Schupper has had opportunity of observing a considerable number of cases.

A detailed review of cases reported by Schupper will be omitted, as space does not permit of doing this. The reader is, however, referred to the original article, as the cases are full of interest and are typical examples. He reports nine cases in which the disease developed between the fiftieth and sixtieth years, five at sixty years, and of these latter cases he does not include all under the head of "senile epilepsy," some being included under the term of "late epilepsy," a rather indefinite term, as Schupper confesses. Such cases of "late epilepsy" differ in no way in etiology, pathology nor symptomatology from the true senile forms. It is quite certain that three cases reported by him, and on which an autopsy was performed, belonged to the second category.

As to the part heredity plays, opinions differ very much. Gowers believes it plays a part in the senile forms of the disease, and he reports the case of an old man of seventy-one years with a marked neuropathic family history.

There is the same opinion especially in regard to the age of epileptic alcoholics. Schupper mentions an observation of Delaneps, in which were strong hereditary influences associated with senile epilepsy. The heredity influences are also evident in some of the cases reported by Herpin, Leglas, Mendel, Jabot, Sympson, Kowalewsky, Rozier, Binswanger, and one finds them well marked in a certain number of cases reported in the article of Schupper. Of course, the hereditary tendencies are more or less remote, as is the rule in nervous disease generally, since the disease is not necessarily transmitted from generation to generation, but other neuroses may result where a neurophatic disposition exists. From the unsatisfactory anamnesis in many cases reported it would seem that hereditary influences play a more important part than one would expect in a neurosis of this kind. Therefore, the opinions of Nothmagel, von Echeverria, von Naunyn and others, that cases of epilepsy appearing late are always of a symptomatic character, cannot be supported according to the opinion of Schupper. That they are not infrequently of this type there can be little doubt.

Of course, the neuropathic disposition alone would not be sufficient to cause epilepsy in an individual; other etiological factors are usually well pronounced. Among these one can include the following: 1st. Infectious diseases, as shown in a case reported by Kowalewsky, although this case was an alcoholic; also the case reported by Lewis Allen. 2d. Gout was an etiological factor in the case reported by Lynch. 3d. Malaria is made accountable in a case reported by Leglas. The author accepts, however, this case with reserve, as he very rightly remarks he has no knowledge of malaria ever playing any *rôle* in the production of epilepsy.

and the patient of Leglas had marked neuropathic tendencies, and was addicted to the use of alcohol, so that it would be impossible to hold malarial infection entirely responsible for the condition. 4th. Psychic disturbances were the etiological factors in the cases reported by Maissonneuve, Leglas, Kowalewsky, Lewis Allen, Rozier, and in a case reported by the author. Alcoholism is an extremely common etiological factor, and, Schupper believes, is the one most commonly associated with epilepsy beginning in old age. As Schupper points out, it is a well-known fact that epilepsy is made worse by alcohol, and that epileptics are very susceptible to alcohol. He cites the report of Westphal, who found that one-third of all those suffering with delirium tremens in the Charité Hospital in Berlin had epilepsy at some time. Fürstner found among 266 cases of delirium tremens sixty-eight patients who had epilepsy (31 per cent.), and Molli reports from the Charité that 30 to 40 per cent. of all delirium tremens patients are epileptics. Gowers believes that if alcohol plays a minor *rôle* in the etiology of ordinary epilepsy, this is certainly not true when we consider the senile variety.

To the occasional etiological factors syphilis must be added—of course, only the acquired form—but in Schupper's article it is evident that this disease does not play any very important part.

Last amongst etiological factors must be mentioned trauma, either direct or indirect injuries to the central or peripheral nervous systems. These are causative agents especially in producing the convulsive seizures. Cases where they have been the cause of permanent epileptic attacks are reported by Jabot and Luth.

* * *

CONTRACTIONS OF THE STOMACH, INTESTINE AND BLADDER DURING AN EPILEPTIC ATTACK. By W. Ossiporo. *Deutsch. Zeitsch. für Nervenheilkunde*, Bd. XV, 1899, S. 94.

As symptoms of an epileptic attack, the involuntary discharge of urine and feces, and also vomiting, are frequently mentioned. By experimenting on dogs, in whom epileptic convulsions had been produced through the use of faradic stimulation of the cerebral cortex, or by the intravenous injection of absinthe, Ossiforo found that during the tonic, and also clonic, stages well-marked contractions of the stomach and small intestine can be demonstrated, especially of the small and large intestine; also strong contractions of the bladder. The spleen seems to contract slightly during an attack, according to this investigator. Besides, we have the pressure of the abdominal contraction and the diaphragm on the alimentary canal and bladder. The contractions are not due to stimulation of certain cerebral centers, but are the result of the general epileptic seizure and the accompanying asphyxia, which is almost always associated with the epileptic seizure. Injections of absinthe, after removal of certain motor regions of the cortex, cause no contraction of the intestines or bladder. The contractions of the stomach do not occur after the vagus nerves are cut.

RECENT LITERATURE IN OBSTETRICS AND GYNECOLOGY.

By George W. Dobbin, M.D.,
Associate in Obstetrics in the Johns Hopkins University.

In connection with the review by Dr. Huger in the July number of the Maryland Medical Journal upon the anesthetic effects of the subarachnoid injection of cocaine, it is interesting to note that shortly after his article went to press the applicability of this method as an anesthetic in obstetrics was tried in the clinic of Prof. E. Bumm in Basel.

The following is a literal translation of an article by Oskar Kreis, which appeared in the *Centralblatt für Gynakologie* of July 14:

On Medullary Narcosis in Obstetrics. By Oskar Kreis.

Bier for the last year has made extensive observations upon "cocainization of the spinal marrow" by the method of Quincke's lumbar puncture. According to him, by the injection of small quantities of cocaine into the subarachnoid space, the lower half of the body is rendered so insensible to pain that severe operations upon the bones and soft parts can be done. Definite disagreeable features have been noted by Bier and Hildebrandt in experiments upon themselves, such as headache, vomiting, giddiness and weakness, which in certain cases persisted even longer than after general narcosis. Thus, it must still remain a questionable point whether cocainization of the spinal marrow might be substituted for ether and chloroform narcosis in operations on the lower half of the body.

More encouraging is the latest publication of Tuffier of numerous observations. He obtained in sixty-five very extensive operations upon the lower extremities, bowel and rectum, and upon the urogenital organs of both male and female, absolute anesthesia by means of medullary cocainization. According to him severe complications do not occur. As minor sequelae of the procedure, Tuffier noted headache, vomiting, feeling of anxiety, and, in some cases, elevation of temperature, sweating and slight chill on the evening of the day of operation. But he particularly emphasizes that in none of his cases were the symptoms any but the most transient either in duration or character. The application of medullary narcosis in obstetrics is the next step after the above results, and through the suggestion of Prof. E. Bumm it was tried on a number of cases in the Basel Clinic. The observations below, therefore, seem of sufficient interest to justify their being reported.

(1) J. J., primipara, aged twenty-three; June 18, 1900. At 2 o'clock pains began; 10.25, membranes ruptured; 10.30, complete dilatation of the cervix; contractions are quite painful, and following each other at intervals of three to four minutes. At 10.50, in-

jection into the subarachnoid space of 0.01 gramme of cocaine; between the fourth and fifth lumber vertebrae. Five minutes later the patient had no pain, but the hand placed upon the fundus of the uterus noted distinct strong contractions at intervals of three to four minutes. Examination of her sensibility showed a definite anesthesia reaching as high as the umbilicus. Deep-needle punctures were noted only as pressure. The sense of pressure and mobility are intact. The patient can not only move her legs with ease, but, on being told to do so, can bear down energetically. Delivered at 11.55; forceps at the outlet without the slightest pain. She felt, as the blade was introduced, as though a foreign body had been placed in the vagina. She felt the traction on the forceps as such. The delivery of the child she designated as the "emptying of her stomach." Slight tears which resulted during the operation, as well as episiotomy incisions, were closed without pain. At 12.05, spontaneous delivery of placenta occurred. At 1.30, general condition good; legs still anesthetic; patellar reflex is increased; patient says both of her legs feel as heavy as lead. At 2, sensibility returned; patient hilarious. At 3, some headache, particularly in the neck; also slight giddiness and nausea. At 5, patient vomits and feels easier; headache lasted until evening; temperature 38.1° C., pulse 72. On June 9 temperature 36.8°, pulse 68; general condition good; headache only noticeable on coughing; patellar reflex normal.

(2) Sch. W., III-para, aged twenty-eight; previous labor in 1898. Version of transverse presentation in generally contracted rachitic pelvis. Pains began June 10, 4 A. M. Rupture of membranes at 3.20; child in first footling presentation. Contractions are strong and painful every three minutes, and the patient is excited and anxious. At 3.45, lumber injection of 0.01 gramme of cocaine. Some of the fluid escaped between the syringe and needle, so that she did not get the entire dose. At 3.52, pain of contractions has to a great extent diminished; the perception of pain on prick of needle on abdomen and legs, especially on inner surface of thighs, is considerably reduced. At 4.15, left foot spontaneously born; pains every three to five minutes; patient bears down well. At 4.30, extraction of the after-coming head by the Veit-Smellie method; moderately painful to patient. At 4.45, placenta born spontaneously; sensibility to pain has returned; after-effects good; neither vomiting nor headache; temperature 37.5° C., pulse 88; puerperium normal.

(3) K. B., primipara, aged twenty-seven. On June 11 at 5 P. M. pains began. At 9.30, rupture of membranes. June 12, 1 A. M., complete dilatation of cervix; contractions were strong and painful, and followed each other every two to three minutes; head remained at the pelvic outlet. At 1.05, injection of 0.01 gramme cocaine. At 1.15, the regular contractions, which occur every two or three minutes, are still strong and efficient, but the sensation of pain has to a great extent disappeared. At 1.20, patient complained of formication of the left foot; the sensibility of both legs

and abdomen is plainly reduced, so that needle puncture is no longer noted as pain. At 1.25, complained of feeling intense heat over the entire body, especially in the legs and along the thighs. At 1.30, vomited. At 1.40, nausea continues; patient has vomited repeatedly; patellar reflex increased. At 1.45, patient complains of great weakness and lack of ability to bear down with the contractions, the strength of which is diminished. At 1.55, formication of left foot has disappeared. At 2, feeling of heat in the head; pupils medium and react well; patient is beginning to notice the contractions as pains; nausea is absent; contractions occur every three minutes, and the pain is beginning to be noticed. At 5.45, on account of exhaustion of patient and weakness of contractions, forceps were applied under chloroform narcosis, the only point of note being that more chloroform than usual was required—25 grammes. At 6.45, the expression of the placenta, on account of bleeding; her condition after the narcosis, except for a slight numbness in the head, is good; temperature 37.7° C., pulse 88.

(4) H. B., primipara, aged twenty-five. 2 o'clock A. M. pains began; 4.45 P. M., rupture of membranes; 3.45, complete dilatation of cervix; contractions strong and painful, every two to three minutes. At 5, injection of 0.01 gramme of cocaine. At 5.10, anesthesia present; needle puncture recognized only as pressure up to the border of ribs; patellar reflex plainly increased, and the uterine contractions, which have decreased in strength, are regular, and the patient bears down well. At 5.30, on account of asphyxia of the child, application of forceps; she experienced the introduction and traction on the forceps as such, but without any pain; on account of nervousness she is excited and anxious; third-stage contractions normal; this patient complains of great fatigue in legs. At 6.30, spontaneous birth of placenta; fatigue of legs has disappeared. At 6.50, patellar reflex less increased; sensation of pain beginning to return. June 13, patient in good condition; she has neither vomited nor been nauseated; no pain or abnormal sensation; patellar reflex normal; evening temperature 36.7°, pulse 88.

(5) Str. E., primipara, aged twenty; June 23, 1900. Pains began at 2 A. M.; 3.15 P. M., rupture of membranes and complete dilatation of cervix; uterine contractions very painful; occur at intervals of three to four minutes; head is visible. At 3.55, injection of 0.01 gramme of cocaine; patient says of her own accord that the pressure during contraction is no longer violent; sensibility not yet altered; pricks with needle and pinching still localized and differentiated; the patellar reflex slightly increased. At 4.05, the hand placed on the abdomen plainly feels the uterine contractions, but they are no longer painful to the patient; "I have no more pains, nor do I feel as before." At 4.07, formication of both legs from knee down, particularly marked at the soles; 4.10, complete anesthesia below umbilicus. At 4.11, without preceding nausea, she vomited some coffee taken half-hour before; formication of left foot is less than that of the right. At 4.20, nauseated; marked perspiration. At 4.40, vomits again; contractions regular

every five minutes, which are felt by patient as a stretching of the abdomen; their duration appears to her to be shorter than before the injection; if told to do so, she will bear down with each contraction, and by this means the head descends and begins to stretch the vaginal orifice; here it remains for five minutes, markedly stretching the soft tissues, while she feels no pain. At 4.45, spontaneous delivery of child, which weighs 4090 grammes; head has a circumference of 36 cm., and no pain was experienced while it was passing; delivery of the child the sensation "as if something had slipped out of the belly." At 4.55, placenta is expressed, on account of quite abundant hemorrhage; this manipulation she feels only as pressure; while the placenta is being delivered she says "that something is coming which is thinner than the child." At 5.10, suture of the vaginal tear is felt only as touch. At 5.30, still marked anesthesia over lower half of the body; definite increase of patellar reflexes; marked bilateral ankleclonus. At 6, return of sensibility; patellar reflex still increased; general condition good; temperature 37.1°, pulse 88.

(6) R. N., aged twenty-seven, primipara; June 25, 1900. Pains began at 3.30 A. M.; membranes ruptured at 2.30 P. M.; complete dilatation at time of rupture. At 3.07 P. M., on account of painful contraction, 0.01 gramme cocaine injected into spinal canal; at this time the head is slightly visible during the pains. At 3.20, energetic pinching and pin pricks are only felt as pressure; anesthesia of the lower half of the body to a hand's breadth above the symphysis. At 3.22, contractions are felt as tension; patient bears down well, and the head descends; anesthesia extends to the breasts. At 3.26, very suddenly, and without preceding symptoms, patient vomits bile-stained mucous fluid; at the same time marked formication of both legs extending from the soles to the middle of thigh. At 3.46, entirely painless contractions every two to three minutes; patient says, "Now I feel my stomach stretch again," and of her own free will strongly bears down with her abdominal muscles; nausea decreases, and the head is visible in the interval between contractions; great dilatation of vaginal outlet and bulging of perineum, without pain. At 4.06, spontaneous delivery; delivery of the child felt, as in Case 5, as the exit of a large body from the abdomen; nausea ceases from time of birth. At 4.10, anesthesia still extends to the xyphoid processes, and the patellar reflexes are plainly increased. At 4.12, patient complains of beginning headache, feeling of anxiety, and there is marked sweating. At 4.25, anesthesia now limited to lower extremities only. The region of the external genitals is again somewhat sensitive to pain. At 4.45, spontaneous birth of the placenta; sensation of passing of a smaller body than at the birth of the child. At 5, patient experiences only slight headache; temperature 37.2° C., pulse 80. At 6, sensibility returns.

The result of the above-mentioned observations is in conformity with the experience of Bier and Tuffier, that after the injec-

tion of 0.01 gramme of cocaine into the subarachnoid space, between the fourth and fifth lumbar vertebrae, in five or ten minutes a complete anesthesia of the lower half of the body up to the lower border of the ribs takes place, while the sensation of touch is partly, and that of voluntary motion apparently unchanged.

As regards the uterus, during labor its motility was hardly disturbed. The contractions occurred with the same frequency, and, as far as could be recognized, with almost the same intensity as before the injection. The sensation to pain, however, was entirely obliterated, and contractions were observed only as "tightness in the stomach." Likewise the pain due to pressure of the presenting part of the soft parts of the pelvic floor disappeared a short time after the injection, so that the distension of the vulva and passing of the head, the introduction of forceps' blade and extraction of head, while felt, were not felt as pain. On account of the sense of pain being absent, reflex action of the abdominal muscles is also absent, and the patient, who at the beginning of each contraction, seeks a support for her hands and feet, and bears down with all her might, after the injection lies perfectly quiet, feeling neither pain nor pressure in the pelvis; has no inclination to help herself by bearing down. She is, however, as well able to use her abdominal muscles, if urged to do so, as before the cocainization. Disturbances in the contractility during the third stage were not observed. After-pains became noticeable only at the expiration of two hours. Operation for repair of laceration could be done without inconvenience.

The impression which one gets from the cocainization of the subarachnoid space in a laboring woman is a very remarkable one. The insensibility to pain, with preserved mobility and intact sensorium, are something very unusual to us. It is too early to attempt to judge of the importance of this method in obstetrics, and so far we may only say this much, that spinal cocainization is not suitable in all cases where energetic co-operation of the abdominal muscles is necessary. Nor is it suitable in timid and excitable patients, who, although they admit that they feel no pain, still cry out for fear during the operation and cannot be kept still.

Like Bier and Tuffier, we have noted no serious complications, and, like these authors, have observed vomiting and headache as after-effects. The technique, as described in the above-quoted publication of Tuffier, is easily acquired. A theoretical objection might be urged to the possible injection of an infected solution. However, there are now sterile solutions for subcutaneous use to be had in glass tubes, and with the extension of medullary narcosis the practitioner will soon have them at his disposal in every drug store.

This method may be suitable in cases of forceps and version in private practice, when it may take the place of chloroform, the administration of which without an assistant is always attended with difficulties, and, in heart and lung affections, with dangers.

Book Reviews.

Pulmonary Tuberculosis: Its Modern Prophylaxis, and the Treatment in Special Institutions and at Home. Alvarenga Prize Essay of the College of Physicians of Philadelphia for the year 1898. Revised and enlarged. By S. A. Knopf, M.D., Physician to the Lung Department of the New York Throat and Nose Hospital, etc. With Descriptions and Illustrations of the Most Important Sanatoria of Europe, the United States and Canada. Philadelphia: P. Blakiston's Sons & Co. 1899.

This is such a book as one would expect from the author, who is excelled by no one in this country as a special student of the prophylaxis and treatment of consumption. From the point of view of the general practitioner it is about the best book on the subject. The author has made personal visits to all the important sanatoria in this country and in Europe. He records his observations frankly, withholding neither praise nor blame. All the information needed by a doctor and most of the minor details likely to be asked for by a patient are found in the book. There is no better guide to the resorts for consumptives.

There are special chapters devoted to climatic treatment, to aerotherapeutics, rest and exercise, to hydrotherapy, to personal hygiene and dress of consumptives, to the dietetic treatment, to symptomatic treatment, to serums and other culture products, to intercurrent diseases and complications.

From the point of view of the public hygienist the book is no less admirable. In respect to the communicability of phthisis, the author holds those views which are best supported by experiment, and the many modes of propagation he considers with a just appreciation of their relative importance. Against the almost countless considerations, social, economic, industrial, political, which make the public prophylaxis a task full of dismay to the statesman, he sets the more frightful cost of unrestricted consumption. The statistical arguments are well assembled from reliable sources. A large part of the book might well have been addressed to public men. The author writes, if not in elegant English, with the energy and directness of firm conviction. He has produced a thoroughly admirable book. F.

Medical and Surgical Nursing: A Treatise on Modern Nursing from the Physician's and Surgeon's Standpoint for the Guidance of Graduate and Student Nurses, together with Practical Instruction in the Art of Cooking for the Sick. Edited by H. J. O'Brien, M.D. New York: G. P. Putnam's Sons. 1900.

This is a collection of fifteen papers by fourteen different authors, covering most of the subjects taught in the training schools, and making a handy little book of nearly 300 pages. There is a good index, but no pictures.

SIMON'S CLINICAL DIAGNOSIS: A Manual of Clinical Diagnosis by Microscopical and Chemical Methods. For Students, Hospital Physicians and Practitioners. By Charles E. Simon, M.D., late Assistant Resident Physician, Johns Hopkins Hospital, Baltimore. In one handsome octavo volume of 563 pages, with 136 engravings and 18 full-page colored plates. Cloth, $3.50 net. Philadelphia and New York: Lea Bros. & Co.

There is no field in medicine in which more work is being done at the present time than that of clinical diagnosis. By its means diagnosis has been placed upon a relatively firm foundation, upon much that was obscure has light been thrown, and many of the crooked places have been made more straight than anyone imagined possible ten years ago.

The old order changeth, and, in place of its empiricism and uncertainty, we have the definite and clean-cut results of the modern school—a school that makes use of every aid possible in reaching a diagnosis, and places no case in the list of undiagnosed until every resource of the laboratory has been exhausted. Much, of course, is to be done—so much that, were the workers not many and the light a bright one, discouragement would be our lot. But this much at least has been accomplished—the glimmer of light has been shown to us, and those who follow it are journeying towards a true goal.

In this the third edition of "Simon's Clinical Diagnosis" is to be found gathered together in convenient shape all the results of the work of the past decade along these lines—work done mainly by our German masters, but nevertheless work to which the American laboratory worker, and even the American practitioner, has added something in the past, and will undoubtedly add more in the future.

The book certainly fulfills its mission, and the third edition fully sustains the reputation of the preceding two for thoroughness and care in preparation. If any subdivision of the book is to be especially commended it is the chapter on the blood, which has been largely rewritten and into which all of the more important recent work on hematology has been incorporated. The book has been conscientiously prepared, is carefully edited, and we feel sure will receive, as it merits, success. B.

A MANUAL OF SURGICAL TREATMENT. By W. Watson Cheyne, M.B., F. R.C.S., F.R.S., Professor of Surgery in King's College, London; Surgeon to King's College Hospital, etc.; and F. F. Burghard, M.D. and M.S. (Lond.), F.R.C.S., Teacher of Practical Surgery in King's College, London; Surgeon to King's College Hospital, etc. In seven imperial octavo volumes, with illustrations. Volume III. Pp. 305, with 100 illustrations. Cloth, $3.50 net. Philadelphia and New York: Lea Bros. & Co. 1900.

The third volume of this useful and practical manual has been recently issued, and compares favorably with its predecessors. It deals almost exclusively with the therapeutic aspect of the subject, and leaves to other and more comprehensive treatises the consideration of surgical pathology, etiology, diagnosis, clinical history and prognosis.

The present volume covers "The Treatment of the Surgical Affections of the Bones, Including Amputations," and includes in the first part eight

chapters on Fractures of the Clavicle, Scapula, Humerus, Forearm and Hand, Pelvis, Femur, Patella, Leg, Foot, etc.

In this part also is given a comprehensive treatise upon Diseases of the Bones in six chapters, in which, among others, the authors write of Acute and Chronic Inflammation, Necrosis, Tuberculous Disease, Syphilitic and Rheumatic Affections, Rickets, Osteomalacia, Acromegaly, Actinomycosis, Tumors, etc.

In Part II amputations receive careful consideration.

As has been said, the manual is practical and useful. It certainly is not artistic in its execution. It presumably is an epitome of the experience of the two authors, since much that is excellent in the treatment of the surgical affections enumerated is omitted. In the consideration of the methods of controlling hemorrhage in amputations at the hip-joint no mention is made of Wyeth's bloodless procedure. It would also seem that the large flaps turned down in wiring the patella or olecranon might be dispensed with by simply making a straight, vertical or transverse incision. The faults of the book, however, are few; its excellences many.

R. W.

Elements of Clinical Bacteriology. For Physicians and Students. By Ernest Levy, M.D., Professor in the University of Strasburg, and Felix Klemperer, M.D., Privat Docent in the University of Strasburg. Second enlarged and revised edition. Authorized translation by A. A. Eschner, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic. Philadelphia: W. B. Saunders. 1900.

This most excellent book on bacteriology cannot be too highly commended to the student of medicine and physician. The translator is to be congratulated upon presenting the same in such a satisfactory manner to the English reader, the book having in no wise suffered in translation from the German. It contains 425 pages, with a sufficient number of good woodcuts and micro-photographs. The subject-matter is well subdivided, so that for the use of students a clear systematic presentation has been achieved. The style is agreeable, and the entire subject treated in a manner to interest medical men in general, a statement which can hardly be made for most books on bacteriology. The work also differs from most of those previously published on this subject, in that it treats especially the subjects of immunity, immunization and cure of disease, presenting the most recent theories of investigators in an especially clear manner. The views of Ehrlich and Behring on the manner of action of toxins and antitoxins are included, and as they are perhaps the first clearly-defined and satisfactory theories to explain many of the phenomena of the action of bacterial and other poisons and their respective antipoisons, they should become familiar to all students of medicine.

The apparatus, stains and matters in general pertaining to the worker in the bacteriological laboratory are fully described and given in a manner which will be clear to the beginner. In general, one may say that the book is especially adapted to those students who are pursuing the more advanced work in bacteriology which is now required in most of the medical schools of this country.

R.

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BALTIMORE, SEPTEMBER, 1900.

TYPHOID AS A SUMMER DIVERSION.

SUMMER sojourners in the country, who have returned in sound health to their summer homes, owe much to Fortune. The city, it is true, distributes in her water mains somewhat besides water, but the unmentioned extras at the summer boarding-house are dispensed more lavishly. Lifetime doses of typhoid, bestowed by the benevolent city, are the sure defense of ungrateful thousands, but there are other thousands whose hot-weather saunterings come to a safe end through such accidents as good drainage and pure water. These latter, we repeat, owe much to Fortune.

It is possible, if one were overparticular, to learn in advance whether good drainage and pure water are among the chance possessions of mine-host-for-the-hot-weeks. The easy and popular way of determining this is to expose one's family for a season, when, if no sickness results, it is not advisable to return the following season in order to be further convinced. If, on the other hand, typhoid fever should be contracted, it is equally manifest that one should go elsewhere next summer. That one might have gone elsewhere *this* summer is a most unprofitable reflection. How are plain people to know except by the experiment?

There are a few pernickety souls, not all of them cranks about these perils by water, who always ask the landlord about his drainage and water supply. What the landlord says upon the subject is sure to be more satisfying than the truth could possibly be. These are the popular means of knowledge employed by all, except those Overparticular people who have a phobia about perils by water and perils by false brethren, and who demand means of *foreknowledge*.

Just a word to the Overparticular. Make your inquiry of the local health officer. The brand-newness of the question may take his breath for a time, but he will probably not lie, and may perhaps try to obtain the information which you desire. If he should be able to answer you at once and to give you detailed information, put your hand over his back and demand of him the word, for he, too, is an Overparticular.

But an Overparticular need not stew in town all summer while health officers are digesting his inquiries, for he can drink boiled water if he is brave, and he may eat raw vegetables whenever he dares.

It would be in some sense a pity if there should spring up a great popular demand for authoritative information about local sanitary conditions. Local sanitarians would make haste to meet such a demand, and the in-

formation would speedily come within the reach of all. Then would the Overparticular lose his distinction. He might save a shred of dignity, perhaps, by demanding that applied science should displace Chance as the provider of sanitary conditions. It is conceivable that people who are merely enlightened might second such a demand, and even make it popular. So the effrontery of the Overparticular would reduce Fortune to a little "f," and we should load her diamonds into coal carts. After that the Overparticular must, so far as I can see, share the luck of the Merely-enlightened.

THE UNFREQUENTED BY-PATHS OF TYPHOID FEVER.

When the main-traveled roads of typhoid are all well guarded, it will still happen that the bacillus will effect a lodgment, and transact business, in the insides even of the overparticular. We cannot forefend every side-step of this resourceful organism. Some observations of the present writer will serve to illustrate the subtler modes of attack.

In 1898, typhoid fever appeared in a rural community of about 400 persons, having excellent sewerage and a common water supply of known purity. There were but three cases of the disease, all diagnosed within the same week, all young girls who had not been away from home within the accepted incubation period of typhoid fever. Counting back from the date of seizure in these cases, the date of probable infection was found to be on or near the 4th of July. Pursuing the inquiry, it was learned that on July 3 the pump at the water station had been disabled. In this emergency the superintendent, who was not merely-enlightened nor overparticular, had recourse through another pump to a well which had not been used by the community, but was accessible to and had been used by a family in which a case of typhoid fever was said to have occurred in 1897. From this well the tank was filled on the night of July 3, and all of this water was consumed on July 4. Meanwhile, repairs having been completed, the usual source was restored to service on the night of July 5.

The clinical history of the community for the next five or six days was uneventful. At the end of that time some twenty-five persons suffered attacks of diarrhea, some of them quite severe, with bloody stools, fever, delirium and emaciation. All of them recovered in from three to seven days. On the 27th of July two young ladies were found to have typhoid fever, and on August 1 the third case was recognized. None of these three cases was very severe, and the events would probably not have attracted investigation but for the accidental presence of two professional hygienists in the community, who, being overparticular, had examined the regular water supply on June 30, and found it good. In the well which supplied water on the glorious Fourth colon bacillus was demonstrated. A report of this outbreak was published in the *Philadelphia Medical Journal*, and appeared later in the Report of the State Board of Health for 1898.

An outbreak which is at present under investigation is no less interesting. A summer cottage in Baltimore county, having excellent natural

surroundings, has two distinct water supplies. One is a bored well of some ninety feet depth, yielding safe water, which is used for drinking. The other supply is a cistern sunk in the earth to a depth of eighteen feet, cemented on sides and bottom, and filled with rain water from the roof. A wide veranda surrounds the house at the second story, and the third-floor rooms look out upon the roof of this veranda. From the cistern the rain water is pumped to a tank at the top of the house, whence it is piped to closets and bathrooms, to the kitchen range, and to the *butler's pantry*.

Guests arriving from the middle of June to the middle of July brought the number of inmates, including servants, to twenty-eight. In the last twelve days of July, eleven of these persons developed typhoid fever, and two later cases occurred in persons who left the house on account of the outbreak. Notwithstanding the assurance that the only source of drinking water was the well, the cistern was made the subject of particular inquiry.

At the date of examination, early in August, colon bacillus was not found in the cistern water. Inquiring about sickness in the house previous to July 18, we were told that about the middle of June there were one or two children on the third floor ailing slightly, that they had diarrhea, and that early in the mornings the chamber vessels had been seen out upon the veranda roof. With the rains that fell from heaven in the last two weeks of June the scourings of these children went into the cistern, passing thence to the tank under the roof and down to the pantry, found an open way into human intestines again as soon as a lazy nigger preferred turning the spigot to working the pump handle. When the dates are considered this explanation of the outbreak seems little less satisfactory than a demonstration.

In this instance suspicion also fell upon the ice supply, which came from a quarry pound, the hideous source which yields the annual harvest in that neighborhood. From this ice was isolated an organism resembling the typhoid bacillus, giving all the cultural reactions of typhoid bacillus, yet doubtful at one point. It does not give the characteristic reaction with known typhoid blood. To isolate the typhoid bacillus from long-stored ice would be rather a noteworthy incident, and the proof must needs be rigorous. It is known, however, that the bacillus withstands freezing for considerable periods, and that ice is a possible, though not an important, vehicle of typhoid fever. In this instance the ice will probably not be convicted.

Another inquiry, now in progress, leads strongly towards a baseball field, where a polluted spring probably infected some seventeen persons.

In 1898 an outbreak of thirteen cases occurring in a large city parish was traced to the annual picnic, and to a particular well, which the picnickers preferred to another supply, perfectly safe, and more convenient, but less cool.

BOARD, LODGING AND DOCTORING.

A Baltimore physician is now under bond to await the action of the grand jury upon a charge of undertaking the care and treatment of an insane person without license. Without hazarding a guess at the action

of the grand jury, one may say that, when the case comes to court, trial will be had upon the infraction of the law governing the commitment and care of the insane, and that the more significant features of the case will not be aired.

The accused physician conducts a private sanitarium, and had under her charge an insane girl who was subjected to mechanical restraint, having more than once been tied to a porch railing in sight of neighbors. These inexpert observers considered this treatment unnecessary and cruel, and complaint was made to the Society for the Prevention of Cruelty to Children. An agent of the Society called at the house, and after investigation concluded that the restraint was necessary, and not cruel. The doctor explained that she was giving the best treatment possible for the money received, only $10 per week, while $60 per week would be required for such special attendance as ought to be provided for such a case. Hard pressed by the daily newspapers, the doctor desired to be rid of this troublesome patient, and, in delivering her again into the hands of her father, incautiously remarked that the girl would recover *unless sent to an asylum for the insane.*

The case reached the attention of the secretary of the Lunacy Commission, who, with two other well-known alienists, did not hesitate to speak through the secular press in condemnation of mechanical restraint, and showed that all the essentials of correct treatment could be obtained at or under $10 a week.

Just why a person, who has qualified to practice medicine and surgery in all its branches, should have his liberty curtailed as to the treatment of mental diseases, is a question that may well puzzle the lay mind. But to the professional mind it would seem that, even with this reservation, the license to practice is large enough to endanger public safety and public morality.

The need of greater restrictions is growing daily more evident with the increasing number of so-called private sanatoria. Subject to no inspection, requiring no license, this scheme of getting the utmost possible control of both the persons and property of sick people is especially attractive to the predatory class of doctors.

While some of the private sanatoria meet the real needs of the public, most of them are mere board, lodging and doctoring houses, and bad in various degrees. In certain of them the business method is to take two accurate measurements of every patient—first, the depth of his misfortune, and, second, his financial strength. The resultant of these two is the price per week for board, lodging and doctoring.

Certain misfortunes are so deep, and such powerful coefficients in the extortion of cash, that those who prey upon such unfortunates decoy their quarry constantly through the public press. It may be a long step up from these lowest to the next worst class, but it is not probable that these alone of the private sanatoria ought in the interests of health and morals to be suppressed.

List of Journals

In the Library of the Medical and Chirurgical Faculty of Maryland

AMERICAN JOURNALS.

Albany Medical Annals.
Alienist and Neurologist.
American Gynecolological and Obstetrical Journal.
American Journal of Insanity.
American Journal of the Medical Sciences.
American Journal of Obstetrics.
American Journal of Ophthalmology.
American Journal of Physiology.
American Journal of Psychology.
American Medical Quarterly.
American Practitioner and News.
Annals of Ophthalmology and Otology.
Annals of Otology, Rhinology and Laryngology.
Annals of Surgery.
Archives of Ophthalmology.
Archives of Otology.
Archives of Pediatrics.
Boston Medical and Surgical Journal.
Brooklyn Medical Journal.
Buffalo Medical Journal.
Columbus Medical Journal.
Gaillard's Medical Journal.
Johns Hopkins Hospital Bulletin.
Johns Hopkins University Circulars.
Johns Hopkins University Register.
Journal American Medical Association.
Journal of Comparative Neurology.
Journal of Cutaneous and Genito-Urinary Diseases.
Journal of Experimental Medicine.
Journal Eye, Ear and Throat Diseases (Baltimore).
Journal of Nervous and Mental Diseases.
Journal of Ophthalmology, Otology and Laryngology.
Journal Alumni Association College Physicians and Surgeons (Baltimore).
Kansas City Medical Index Lancet.
Laryngoscope.
Louisville Journal of Surgery and Medicine.
Maryland Medical Journal.
Medical News.
Medical Record.
Medical Review.
Medical Review of Reviews.
Medico-Legal Journal.
Memphis Medical Monthly.
Monthly Cyclopedia Practical Medicine.
Montreal Medical Journal (not regular).
New Orleans Medical and Surgical Journal.

New York Medical Journal.
North Carolina Medical Journal.
Ophthalmic Record.
Pacific Medical Journal.
Pennsylvania Medical Journal.
Philadelphia Medical Journal.
Southern Practitioner.
St. Paul Medical Journal.
Therapeutic Gazette.
University Medical Magazine (March, 1900).
Yale Medical Journal.
Virginia Medical Semi-Monthly.

REPORTS.

Official Report of Board of Health, Baltimore.
Public Health Reports.

FRENCH JOURNALS.

Annales de dermatologie et de syphilographie.
Annales de médecine et chirurgie infantiles.
Annales des maladies des organes genito-urinaires.
Archives de médecine des enfants.
Archives d'ophthalmologie.
Archives générales de médecine.
Bull. de l'Académie Royale de Médecine de Belgique.
La Clinique.
Gazette des Hopitaux.
Gazette Hebdomadaire.
L'gynécologie.
Nouvelle Iconographie de la Salpêtrière.
L'obstetrique.
Revue de chirurgie.
Revue neurologique.
Revue d'orthopédie.

GERMAN JOURNALS.

Allgemeine Zeitschrift für Psychiatrie.
Archiv für Dermatologie und Syphilis.
Archiv für Gynaekologie.
Archiv für Hygiene.
Archiv für Kinderheilkunde.
Archiv für klinische Chirurgie.
Archiv für Laryngologie und Rhinologie.
Archiv für Ohrenheilkunde.
Archiv für path. Anatomie und Physiologie.
Berliner klinische Wochenschrift.
Centralblatt für allgemeine Pathologie und pathologische Anatomie.
Erste Abteilung: Cent. f. Bakter. Paras. und Infek.
Zweite Abteilung: Cent. f. Bakter. Paras. und Infek.
Centralblatt für Chirurgie.
Centralblatt für Gynäkologie.
Centralblatt für innere Medicin.

Centralblatt für Kinderheilkunde.
Cent. f. d. med. Wissenschaften.
Cent. für Nervenheilkunde und Psychiatrie.
Cent. f. prakt. Augenheilkunde.
Dermatolgisches Centralblatt.
Deutsche med. Wochenschrift.
Deutsche Zeit. für Nervenheilkunde.
Deutsches Archiv für klin. Medicin.
Fortschritte de Medicin.
Hoppe Seylers' Zeitschrift f. Physiologische Chemie.
Inter. Cent. für Laryngologie Rhinologie und verwandt Wissenschaften.
Jahresb. u. d. Leistungen und Fortschritte in d. gesammten Medicin.
Mitteilungen a. d. Grenzgebieten d. Medicin und Chirurgie.
Monattschrift für Psychiatrie und Neurologie.
Münchener med. Wochenschrift.
Augenheilkunde. Samlung zwanz. Abhand.
Frauenheilkunde und Geburtshilfe. Samlung zwanz. Abhand.
Nasen-, Ohren-, Mund-, Hals-Krankheiten. Samlung zwanz. Abhand.
Nerven- und Geisteskrankheiten. Samlung zwanz. Abhand.
Neurologisches Centralblatt.
Sammlung klinisches Vostrage.
Schmidt's Jahrbücher d. Gesammten Medicin.
Therapeutische Monatshefte.
Wiener Klinik.
Wiener med. Presse.
Wiener med. Wochenschrift.
Zeitschrift für klinische Medicin.

JOURNALS OF GREAT BRITAIN..

British Medical Journal.
British Journal of Dermatology.
Brain.
Dublin Journal Medical Science.
Edinburgh Medical Journal.
Journal of Laryngology, Rhinology and Otology.
Journal Pathology and Bacteriology.
Journal of Physiology.
Journal of Tropical Medicine.
Lancet.
Medical Chronicle.
Ophthalmic Review.
Practitioner.

ITALIAN JOURNALS.

Bullettino d. reale Accademia medica d. Roma.
Giornale d. r. Accademia d. med. d. Torino.

SCANDINAVIAN JOURNALS.

Nordiskt Medicinskt Arkiv.
Upsala Läkareförenings Förhandlingar.

Medical Items.

A case of plague occurred on a ship in the harbor of Hamburg on August 6.

Dr. J. Williams Lord has removed his office to 24 West Franklin street, Baltimore.

The Prince of Wales has been elected an honorary fellow of the Royal College of Surgeons.

Dr. Nicholas Senn offers his services to the United States government for duty in China.

T. B. Blackstone of Chicago, has left $25,000 each to Passavant Memorial Hospital and to St. Luke's.

Dr. William S. Halsted has been made a fellow of the Royal College of Surgeons of England.

Dr. Morris C. Robins was married on August 15 to Miss Minnie E. Davenport at Washington, D. C.

The heat in Baltimore from August 5 to the 19th was intense, and was credited with causing some sixty deaths.

A new medical journal has appeared in Havana, *Revista de Medicina Tropical*, edited by Dr. John Guiteras and Dr. Emilio Martinez.

There are five cases of smallpox at Lakeland, in Prince George county, Md., all convalescent. There is no smallpox elsewhere in the State.

Dr. Hunter McGuire of Richmond, who sustained a hemiplegia some weeks ago, is so far improved as to take daily carriage exercise.

American troops at Pinar del Rey suffered heavily with yellow fever in July. One cause of its spread was mistaken diagnosis, the disease having been called malarial fever.

The report of the inspector-general of the board of health of Paris shows that 294 persons were treated for rabies at the Pasteur Institute between January 1 and June 8, 1900.

Four cases of plague have occurred in London, two deaths resulting. The diagnosis is fully confirmed by bacteriological studies. There is very slight probability of spread.

In Philadelphia it is proposed to supply ice water to all parts of the City Hall from a central source. The estimate is upon 50,000 gallons daily, and the plant will cost about $46,000.

The physicians and surgeons who have been nominated for places in the Hall of Fame are Valentine Mott, Benjamin Rush, James Marion Sims, Ephraim McDowell, and John Collins Warren.

The City Hospital of Geneva, N. Y., will be a beneficiary under the will of Judge Francis O. Mason to the amount of $10,000, and after the death of two sisters of the judge will receive $80,000 additional.

An enthusiastic amateur nurse found pinned to the coverlet of her favorite patient in a Cape Town hospital a note which said, "to il to be nussed to-day respectfully J. M." The patient was sound asleep.

House to house vaccination has been ordered by the health authorities of Montreal. The outbreak of smallpox has been marked by considerable mortality and by its incidence upon good residence districts.

The date of the twenty-eighth annual meeting of the American Public Health Association has been changed from the first week in October to the fourth week, 22d, 23d, 24th and 25th. The place of meeting is Indianapolis.

There is an unusual amount of diphtheria in Baltimore, considering the season. While the conditions are for the present by no means serious, the health commissioner looks forward to the opening of the school year with some apprehension.

Dr. Ferdinand E. Chatard died at Atlantic City on August 27. Dr. Chatard was a son of Dr. F. E. Chatard, and a grandson of Dr. Pierce Chatard. He was born in 1839, and graduated in Medicine in the University of Maryland in 1861.

Dr. Wm. C. Woodward has been reappointed health officer of the District of Columbia, and the order of 1894, limiting the term of office to three years, has been suspended. This secures to Washington the services of a particularly efficient commissioner of health.

There have been an unusual number of lightning casualties in Maryland lately. On August 13 Dr. W. H. Ravenscroft of Oakland, Garrett county, was struck and rendered unconscious. The same shock stunned his horse and a colored messenger who was driving beside the doctor.

Dr. S. A. Knopf has carried off another international prize, having been awarded the 4000 marks offered by the Berlin Tuberculosis Congress for the best essay on "Tuberculosis as a Disease of the Masses, and How to Combat It." Dr. Knopf's essay is to be printed and distributed widely.

The progress of State care of lepers in Louisiana is not very rapid. The State legislature appropriated $20,000 one year ago for the purchase of a site and the erection of buildings. A site has not yet been selected. The board applied to the recent legislature for an additional $20,000, but received only $5000.

The *Richmond Journal of Practice* has discovered a new mode of infecting wells with typhoid. The country well, provided with a bucket, raised and lowered by a rope, chain or pole, when operated by a person having infected hands, may easily become infected, the hands being almost literally washed in the well.

The Baltimore County Medical Association keeps up its monthly meetings throughout the summer, and continues to attract its members by holding the meetings at cool spots. The July meeting was held on a Tolchester steamer, and the August meeting at the fishing shore of the Maryland Yacht Club.

Among the beleaguered Americans in Pekin is Dr. Robert Coltman, formerly of Washington, D. C., surgeon of the Imperial Railways, physician to the Presbyterian Hospital at Teng Chow Fu, and medical adviser of Li Hung Chang. Dr. Coltman should have "pull" enough to save himself and most of his companions.

The new vital statistics law of Maryland is now working fairly well. There are forty-three local registrars in the State and some 300 sub-registrars. The sub-registrars issue burial permits upon presentation of a physician's or coroner's certificate of death. All the counties are operating the law except Somerset, Caroline, Allegany and Calvert. Somerset and Caroline have not as yet appointed their sub-registrars.

At the August (2d) meeting of the Cecil County Medical Society there was a symposium on typhoid fever. Dr. Wm. T. Skinner read a paper on "Typhoid Fever, with Particular Reference to the Temperature Range;" Dr. Howard Bratton of Elkton read a paper on "Some Unusual Manifestations in Typhoid Fever;" Dr. A. Robin of Newark, Del., read a paper on "The Widal Test, with Demonstrations."

Dr. Hibbard W. Hill, bacteriologist of the Boston Board of Health, received from the Johns Hopkins Hospital some specimens sent to Baltimore by the University of California and taken from the body of Chee Yen Yan, whose case was the subject of editorial comment in the Maryland Medical Journal for August. Dr. Hill concluded from animal experiments that the bacillus was that of bubonic plague.

A very clever impostor swept in a bright path through the "professional" sky of Baltimore recently under the name of "Dr. Charles A. von Ahlfeldt of the Staff of Surgeons in the Navy of Germany." He left a trail of unpaid bills which marked his flight from here to Cumberland, where he was arrested. Among the decorations of his room at the Queen City Hotel was a photograph of himself in the center of a group of Baltimore surgeons.

The *Medical News* relates the story from a French contemporary of a young physician who was called upon by a woman having the external signs of pregnancy and was engaged for the coming accouchement. When called to his patient a few months later the doctor found the baby born, washed and dressed. After a mild reproof for his tardiness, the mother asked him to call at the registration office and register the newly-arrived baby. Glad to make some amends for his tardiness, the doctor did as requested. He found himself sometime later included in an indictment for aiding and abetting a fraud by procuring a false registration of a birth. The woman had not been pregnant, but in order to acquire some property had cleverly inveighed the doctor into her plan to palm off a supposititious child as her own.

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PYLORECTOMY FOR ADENO CARCINOMA, WITH REPORT OF A CASE.

By Jos. H. Branham, M.D.,

Professor of Surgery and Abdominal Surgery, Maryland Medical College, Baltimore.

J. R., white male, came under my charge about September 1, 1899. His family history was good, no cases of malignant disease being noted. His general health had been good until about eighteen months before, when he had a severe attack of malaria. This was followed by recurrent gastric attacks, characterized by cramps and vomiting, the vomit containing bile. During this time he had to be careful as to food, coarse articles causing distress and a sense of distention in the upper region of the abdomen.

Examination.—Patient tall and spare, skin sallow and muddy, pulse weak and rapid on exertion, mucous membranes pale. Physical examination of abdomen shows thin walls, tenderness over region of stomach, which organ was slightly dilated, and the spleen was much enlarged. Under large doses of quinia the splenic enlargement rapidly disappeared, but the gastric symptoms grew worse. Gastric lavage gave little relief.

September 26 he was admitted to the National Temperance Hospital, and shortly afterward Prof. C. Urban Smith was able to make out a small mass at the right of the median line above the umbilicus. This could only be felt when the patient sat up with his legs well apart and stooped well forward.

The following notes by Professor Smith elucidates the points of diagnosis:

Contents of stomach, acid; acid hydrochloric, .09 per cent.; acid lactic, free; acid butric, free.

Pepsin and renert normal; contained excess of mucus, yeast cells and a few cells resembling cancer; solol test showed good motor functions.

Kali iodide test showed delayed absorption; indican in urine.

Diagnosis—Cancer of pylorus.

Preparation for Operation.—Patient was put on a strictly liquid diet, and for two days was given three grains of salol, and 1-30 gr.

of nitrate of strychnia three times per day. The night before he was given a purge, and immediately before taking the anesthetic his stomach was carefully washed out with sterile salt solution. The usual preparations of the parts to secure surgical cleanliness were made.

Operation.—October 12. A median incision about four inches in length enabled us to examine the organs *in situ*. The pylorus was slightly lower than normal, and was freely movable. A small growth about two inches in length and an inch broad was found occupying the anterior and inferior aspect of the pylorus, encroaching on the duodenum. The length corresponded to the circumference of the gut. This growth extended about two-thirds around the organ, and was firm, but not very hard. No other abnormality was found in the neighboring parts.

The attachments of the omentum to this part of the organ was tied off and severed. The diseased part was now drawn well forward into the abdominal wound and surrounded by sterile gauze sponges, the attachments divided, and the duodenum severed about an inch below the neoplasm and the stomach the same distance above.

An end-to-end anastomosis was next made by means of a Murphy button, which was reinforced by peritoneal sutures. The abdominal wound was closed after carefully cleansing the parts with salt solution, part of which was left in the peritoneal cavity. All the sutures used were catgut hardened in a solution of bichloride of mercury in alcohol, one part to a thousand.

The patient was very weak, and had several subcutaneous infusions of salt solution during the first twenty-four hours after the operation. He was also given about 1-10 gr. of strychnia nitrate during and after the operation. He rallied slowly. For the first five days he had nothing by the stomach, and was nourished entirely by the rectum. On the 14th he had his highest temperature, 101°. He was allowed to wash his mouth with cold water.

On the 17th he was given small quantities of albumen and pan-peptone. This collected in his stomach and caused great distress, and was washed out on the 19th by the stomach tube. This gave great relief, and was continued about every second day for two weeks. Most of the food taken apparently remaining in his stomach, the rectal feeding was continued during this period. On the 29th, seventeen days after the operation, the Murphy button was removed from his rectum by the resident physician. He gradually became able to digest food, and gained strength slowly.

His temperature was nearly always subnormal, both before and after the operation. This I attributed to the bad nutrition, due to insufficient assimilation.

He left the hospital November 20, and returned to his home in North Carolina, weighing at this time eighty-four pounds. He reported by letter from time to time to me, and gradually gained strength and weight until April, 1900, he reached the very respectable figure of 147 pounds.

Pathological Report (Prof. R. L. McNeer).—"The growth is a carcinoma, showing at points sufficient glandular arrangement to justify the name adeno-carcinoma. Beside the principal mass, a number of small points of invasion of the surrounding tissue is noted. The growth seems to have encroached on the mucous membrane of the duodenum to a great extent."

General Considerations.—The recent great improvement in operation *technique* and in means of diagnosis giving better results, have aroused much interest in the surgical treatment of disease of the stomach.

Pylorectomy was first done in man by Pean in 1879, and the first successful case was by Billroth in 1881. The mortality was high in the early cases, but recently it has been much diminished.

The following table is probably not nearly complete, but will give a general idea of the mortality and also of the improved results of recent operations:

	Cases.	Recovered.	Died.
*Winslow	60	16	44
†Mikulicz	32	8	24
Billroth	19	8	11
Guinard	299	194	105
Czerny	29	18	11
Kronlein	24	19	5
Carle	14	11	3
Mikulicz	20	15	5
Hartmann	10	6	4
Wilmott Evans	13	12	1
Morison	5	5	..
Kocher	57	52	5
Maydi	25	21	4
Roux	12	9	3
Tuffier	9	6	3
Lambotte	5	4	1
Van Kleef	4	1	3
Leeds Infirmary Staff	7	3	4
Karg	4	4	..
Gussenbauer	13	7	6
Mayo	3	3	..

Referring to the above table, we find that the cases collected by Winslow and Mikulicz (1 and 11) were the early cases done before 1885. They are probably duplicated to an extent, but as they give almost the same results, this does not impair their value for comparison.

Taken together, they show a mortality of 74 per cent., while the rest of the table, taken from an article by Mayo Robson,‡ which shows the combined mortality of both the old and new cases,

American Journal Medical Sciences, 1885.

†*Wein. Med.*, November, No. 24.

‡*Lancet*, March 24, 1900.

shows 572 cases; recovered, 398; deaths, 174—mortality, 30.4 per cent. Could the old cases be eliminated this mortality would be much further reduced.

The remarkable result shown by Kocher—fifty-seven cases, with a mortality of less than 9 per cent.—gives hope that we will soon be able to class this as one of the operations not excessively dangerous.

The remote results of the operation, unfortunately, have not been so good, most of the cases being relieved for only a short time, and later showing recurrences. Fifty successes of Kocher show one woman living ten years without recurrence, one five years, one three years, and one two years. Four died of other troubles without recurrences after three or more years, so we may claim these eight cases as permanent cures out of the fifty-seven cases operated on. The other cases of the fifty-two who survived the operation were made more comfortable, and in the aggregate had many years of useful life added to their existence.

I think that we may now consider some of the general facts bearing on the cases and influencing the results of the operation:

Causation.—Unfortunately, we are still in the dark as regard to the etiology of malignant disease. True, much recent work has been done along this line, and reports of the same have been made. This will no doubt be of great value in the future. As yet, however, we have nothing accepted by the profession as proven. We have good reason to hope that we shall soon have light on the cause of this terrible scourge, and that this may lead to improved methods of treatment.

Diagnosis.—Great advance has been made along this line. Some points in the natural history of the disease will help us in coming to a correct conclusion. Cancer occurs usually after middle life, but there are many exceptions to this rule.

A paper by Prof. Wm. Osler and Dr. McCrae gives the proportion under thirty years in a collected table of 3257 cases 2.5 per cent. In 150 cases from the Johns Hopkins Hospital 4 per cent. were under thirty. Men are more often the subject of gastric cancer than women. The position of the growth is most frequently the pylorus, over 60 per cent. of cases being found here. Among the symptoms pointing to this disease, we note briefly pain, dull, often continuous, and increased after eating; belching of gases, often foul; vomiting of partly-digested food, later mixed with decomposed blood (coffee grounds); loss of weight and energy; temperature not infrequently subnormal, but may be elevated in rapid cases near the end.

Physical Signs.—Usually some dilation of stomach when growth is at the pylorus. The presence of a mass can usually be made (*New York Medical Journal*, April 21, 1900) out by examining patient frequently and in various positions (the value of change of position was well illustrated in my case).

The stomach should be examined empty and distended both by gas and fluid. Great assistance can be obtained by careful exami-

nation of the contents of the organ. Absence of HCl, while not a positive sign, points strongly to the cancer. Excess of lactic acid is suggestive of cancer. The finding of parts of growth in the wash water may enable us to make a positive diagnosis. Unfortunately, this is possible only in the disease, and often after the time for radical operation has past. The *x*-ray may help us make out a mass.

Finally, the exploratory incision should be relied on more frequently. Such procedure should be considered as almost harmless here as they are in other parts of the abdomen, and should be employed early, as soon as we have strong suspicion of cancer. This will enable the surgeon to attack the growth while it is still small.

When a neoplasm is found after opening the abdomen, the selection of the proper operation for the case is of great importance.

If the lymphatic glands are involved, and many adhesions are present, the operation should be abandoned; or, in case there are symptoms of stenosis present, a gastro-enterostomy should be done. Pylorectomy is indicated when the growth is in the pylorus and when the glands are free and the organ not much adherent.

Partial or complete gastrectomy is to be done when the tumor occupies other situations and the organ is free from adhesions. When adhesions are present the operation becomes excessively dangerous, and, even when successful, recurrence soon takes place.

The method of operating differs much with surgeons. Kocher first does a gastro-jejunostomy, and some weeks later excises the mass, closing the two cut ends of gut.

His results have been better than any other surgeon who has had a very large number of cases. He does not like the Murphy button, as he says it often fails to pass, and he reports one case where it was found in the stomach fourteen months after the operation. Dr. Mayo of Rochester, Minn., who has had five successful cases and no failures, always uses the button. Its advantages are the ease and rapidity with which it enables us to close the bowel.

The slough which it causes is probably advantageous, as it removes tissue which is near the growth, and is possibly infiltrated. It is not necessary to draw on the organ to so great an extent when it is used, thus dragging on the nerves and other important parts is avoided, which, together with the saving of time, lessens the shock and the other bad results of long exposure and manipulation of the parts.

The case before you illustrates some important principles, to which, before closing, we will call your attention. The marvelous improvement in our patient's general condition, and the small extent and the slow growth of the tumor, lead us to hope that this will be one of permanent cure. The repeated washing out of his stomach after the operation relieved the patient of great distress and probably saved his life.

The rapid increase of cancer during the last few years makes the report of every operation more important than formerly.

Too many physicians and surgeons tend to despair the unfortunates who are attacked by this dread disease. Many, like Micawber, are waiting for something to turn up from the laboratory workers. That some other means of destroying or preventing this one of our worst enemies may be discovered we all hope, but it would be the height of folly to fold our arms and wait for such a consummation. Let us rather try to improve our known methods of attack.

Nothing will help us so much in this direction as early diagnosis and operation. Much is due to the stomach specialist in helping to perfect means of diagnosis, but often he treats these cases until the disease has advanced too far. Careful lavage and diet not infrequently lead to temporary improvement. Both physician and patient are soothed into a fatal sense of false hope, and procrastinate until the time for radical operation has passed. The exploratory operation will probably do more to save these poor unfortunates than anything else, and should be more frequently employed. Practically all these cases are operable at some period of their existence, and we have reason to hope that in future they will be referred to the surgeon at a time when the tumor can be successfully attacked, and not only temporary relief is possible, but when a large proportion can be permanently cured. The cases of absolute cure of cancer in other organs is becoming more and more common. Surely we can hope for this same advance in cancer of the stomach, where glandular involvement comes late in the disease.

REPORT OF A CASE OF ENCYSTED PERI-URETHRAL GRAVEL.

By William E. Huger, M.D.,

Assistant in Genito-Urinary Surgery, Johns Hopkins Hospital, Baltimore.

EXTRA urethral calculi are rare enough to justify the report of a case on which I have recently operated.

C. P., musician, aged seventy, married. Complaint, retention of urine. Past history: Gonorrhea several times when young, followed a few years later by stricture, for which, six years ago, he was treated at the Johns Hopkins Dispensary. Four years ago he began to suffer with frequency of micturition, which very gradually increased, as did the following symptoms: Difficulty on beginning the act of micturition, occasional tenesmus, and the feeling that the bladder was never entirely emptied. Quite frequently he passed varying-sized calculi, some of which passed out with difficulty. No definite symptoms of vesical calculus. Never catheterized himself.

Two days ago, while voiding urine, there was the sensation of something hard passing from the bladder into and along the urethra. It stopped suddenly, with some pain, and immediately blocked the stream of urine. No blood was passed. After about three hours his bladder began to feel very full, and he had intense desire to urinate. Short temporary relief was obtained by straining. This condition continued up to today.

Patient is stout and in fairly good general condition. Bladder extends to umbilicus. A slight dribble accompanies each effort at micturition. Rectal examination shows the prostate about the size of a small pear, smooth and hard, but not nodular, groove and notch obliterated, enlargement symmetrically bilateral. A rubber catheter introduced into the urethra encounters an obstruction six and one-half inches from the meatus. A silver one stops with a metallic click at the same location, and causes considerable pain on manipulation.

External palpation of the perineal urethra discovers a hard mass about the size of a pecan nut at the end of the catheter, and behind this an indurated urethra, which gives a grating sensation like sand as the finger is drawn along.

A diagnosis of obstructed urethral calculus, with many smaller gravel behind it, was made. Several methods for dislodging the larger stone were tried unsuccessfully. When a filiform was pushed slightly beyond the stone a little more urine than usual would flow by, but beyond some relief to the bladder's tension nothing was accomplished.

Just before the operation on the following day the patient informed me that he had passed a gravel during the night, but could not void his urine.

Operation was done on April 15. A 23 F. sound was passed into the urethra, but stopped at the same point as before, and though no metallic click was noticed, the same grating feel was present. External urethrotomy was done under 1 per cent. eucaine. There was only a moderate amount of periurethral induration, and the tissues looked healthy about three-quarters of an inch anterior to the bulbo-membranous junction. The lumen for a very short distance in front of and behind this junction would only admit an instrument about the caliber of a No. 12 F. On dividing this no stone was found, but below and to the right, bulging into the lumen of the urethra, was an oval mass about $2\frac{1}{2}$ cm. long by 2 cm. thick. This proved to be a collection of encysted phosphatic gravel the size of a buckshot and surrounded by dense fibrous tissue, causing considerable encroachment on the urethral lumen. No connection with the urethra could be found. Here was undoubtedly a mass of encysted extra-urethral gravel, which, by bulging into the urethra, had aided in detaining a small calculus on its way from the bladder to the meatus.

I believe the most plausible explanation of this unusual condition is found in the dilatation of the urethra posterior to the stricture.

Wherever there is an organic stricture the entire urinary tract posterior to it is impaired. The urethra and bladder and all ducts having their opening into them are much dilated and the walls thickened.

The mouths of these ducts entering the posterior urethra became little cavities, in which gravel passing in the urine were caught and retained. Then a subsequent dilatation of the stricture by instrumentation probably caused these calcareous fragments to be pushed even farther from the urethra, and inflammation afterwards gave scar tissue a chance to form between them and the urethral lumen.

The question naturally arises, if the impacted urethral stone stopped the flow of urine, why, when the obstruction was removed, did not the ability to void return?

The patient was seventy-one years old, and had, in addition to the stricture, a very much hypertrophied prostate, which became secondarily a factor in the retention and kept it up even after the primary cause was gone.

It is well known how frequently an enlarged senile prostate will assume this *rôle* upon slight provocation.

Recovery after operation was uneventful.

REPORT OF TWELVE CASES MASTOIDITIS WITH OPERATIONS.

By Geo. S. McReynolds, M.D.,

Baltimore, Md.

The following cases have come under my observation at the Presbyterian Eye, Ear and Throat Charity Hospital:

Case I.—M. S., male, aged 8 years; admitted to hospital April 22, 1899.

For seven weeks prior to admission has had discharge from right ear. On the day before admission was taken with pain and swelling over mastoid; some fever, and was much sicker than he had previously been.

On admission the usual incision over mastoid was made, the bone exposed, and found to contain pus and considerable necrosis; all pus and necrosed bone removed; free communication established between mastoid wound and external canal by way of middle ear. Posterior wall of canal and ossicles were not disturbed.

Convalescence uneventful. Mastoid wound and drum membrane healed June 18, 1899.

December 4, 1899.—Patient can hear a watch tick at twenty-five inches.

Case II.—L. S., male, aged four and one-half years, brother of Case I; admitted May 22, 1899. Left ear has been discharging for

about one month. For past ten days has had pain and swelling over left mastoid, and general condition getting worse.

On admission operation was performed to about same extent as Case I, and about same condition found. Recovery uneventful. Both mastoid wound and drum membrane healed by June 15, 1899.

December 4, 1899.—Patient could hear watch tick at thirty-six inches.

CASE III.—P. K., female, aged three years; admitted May 9, 1899. Ten days prior to admission left ear began to discharge, and for five days has had great tenderness, and swelling over left mastoid.

May 10.—Mastoid was opened, and condition found about same as in preceding cases.

May 22.—Patient left hospital.

January 5, 1900.—Patient was seen, and I learned that a second operation was required about December 1, 1899, as mastoid wound began to discharge. The wound healed, but on January 5 was discharging slightly. There has been no discharge from ear since first operation. Drum membrane is intact, and she hears the watch tick at twenty-four inches.

CASE IV.—M. E. H., female, aged five years; admitted to hospital September 4, 1899. About two years ago had scarlet fever, followed by discharge from right ear. Several months ago had pain and swelling over mastoid. The skin over this region was incised and considerable pus evacuated, but this wound, as well as the middle ear, has continued to discharge ever since. General condition poor. An incision was made over the mastoid, exposing the bone, which was necrotic to a very large extent. All the necrosis was removed, as well as the ossicles and posterior wall of external canal.

November 29, 1899.—The case has been dressed in the usual way, but has failed to heal, and is still discharging very offensively. Again placed under general anesthesia and thoroughly curetted.

February 1, 1900.—There is no longer any discharge from the canal, and very little from the mastoid wound. I think we can confidently expect this wound to heal up soon. General condition of patient is very good, but cannot say how hearing will be, but probably almost nothing, as both drum and ossicles are gone.

CASE V.—B. K., female, aged fourteen years; admitted to hospital September 24, 1899. Had discharge from left ear when a child, but recovered. About six months ago left ear began to discharge again. About four months ago pus collected over mastoid and was discharged through the skin. This sinus continues to discharge, as does the middle ear. Hears watch tick at three inches with this ear.

September 25.—Mastoid exposed, and large quantity of granulations removed. Middle ear and ossicles were not disturbed.

January 1, 1900.—Recovery has been uneventful, except that

mastoid wound has been slow to heal. The discharge from middle ear has ceased.

February 10.—Mastoid wound healed, as well as drum membrane. Now hears watch tick at fifteen inches. General condition good.

CASE VI.—R. H., male, aged three years; admitted October 5, 1899. Has had discharge from both ears for about five years; most profuse from right ear.

About fifteen months ago had an attack of pain over right mastoid, and since then has had a feeling of uneasiness about the head. About two weeks before admission discharge from right ear decreased somewhat, and patient seemed restless and dull. About four days prior to admission he became very sick, with severe pain in head, accompanied by rigors, followed by high fever; large polyp extending from middle ear. On admission is very weak; has no appetitie; has fever and pain and redness over right mastoid.

October 6.—Had another severe rigor. General condition unchanged. About noon the mastoid was exposed and found in an eburnated condition, all the cells seemingly destroyed by previous inflammation; middle ear filled with granulation tissue; ossicles and posterior bony wall of canal removed; lateral sinus exposed and found occluded by pus and blood clot. The sinus was curetted until a good flow of blood was secured in each direction. Patient was now in such poor condition that he was given a stimulating injection and put to bed.

October 19.—Patient has had a good deal of pain, and has been rather restless, but has not had much fever, and has had no more rigors. For several days past has complained of pain on right side of neck, and has a swelling there also. This was opened in the afternoon, the incision extending from mastoid wound to clavicle, a large quantity of pus being evacuated; wound firmly packed. The patient developed marked facial paralysis, and pharyngeal paralysis, and had great difficulty in swallowing.

October 20.—Pharyngeal paralysis passing off, but facial paralysis persists. Has been fed by rectum, and general condition is much better.

November 1.—Very little discharge from wound, but patient is having an occasional sweat. Has developed a hernia of brain where the sinus was, the inner wall having yielded. Takes nourishment very well. Complains of some pain over region of stomach.

November 4.—A well-marked swelling over region of stomach was aspirated and found to contain muco-pus. It was thought best not to open this, as the condition of patient was so poor.

November 8.—Condition of mastoid wound very good. General condition of patient very poor; does not take nourishment well. Temperature has been very septic in character.

November 11.—Patient died at 3 A. M.

Autopsy.—Small area of meningitis along the longitudinal fissure. Hernia of cerebellum on right side at lateral sinus. Jugular vein thrombosed at fossa and just above clavicle, and reduced to a cord in between these points. Lungs showed considerable hypostatic congestion and some hemorrhagic infarcts; small abscess in right lung. Both plurae firmly adherent to diaphragm. Considerable pericardial effusion of sero-purulent character. Fibrinous deposit on heart. Large sub-diaphragmatic abscess, holding about one pint of sero-purulent fluid, the entire left lobe of the liver being its floor. Many peritoneal adhesions at splenic end of stomach. Small abscess between under surface of liver and stomach. Other organs not particularly changed.

CASE VII.—Mrs. J. H. S., aged twenty-seven years; admitted to hospital October 10, 1899. This patient is an aunt of Cases I and II. Has had discharge from right ear for twelve weeks, and has had inflammation over mastoid for four weeks, for which operation was advised, but she declined. Has great swelling and pain over mastoid, with some fever. The usual skin incision was made and a large quantity of pus was evacuated. Mastoid was found to be almost entirely necrotic; all pus and necrosed bone removed; middle ear not disturbed.

December 1, 1899.—Patient has made an uneventful recovery, and mastoid wound and drum membrane both healed. Hears watch tick at thirty inches. General condition greatly improved.

CASE VIII.—C. E. N., male, aged thirty years; admitted to hospital October 27, 1899. Has had discharge from left ear for twenty-eight years, and about fifteen years ago had an attack of left mastoiditis, accompanied by septic chills. At this time he had a Wilde's incision made. Since that attack of mastoiditis he has had epileptic attacks. About three weeks before admission he had a large polyp in left ear and pain over mastoid. Removal of polyp and establishment of discharge from ear relieved pain over mastoid to a certain extent. About three days before admission he again had severe pain over mastoid, accompanied by fever. General condition of patient much worse than three weeks earlier.

The usual exposure of the mastoid was made, and a small subperiosteal abscess opened. Mastoid cells opened and found full of granulation tissue. This was all cleaned out and also the middle ear. The posterior wall of the canal was removed.

October 31.—Has developed abscess along sterno-cleido-mastoid muscle, which was opened. Patient has left facial paralysis.

November 10.—Not much discharge from wound, and general condition improving rapidly. Left hospital to be dressed at his home.

CASE IX.—P. S., male, aged fifteen years; admitted November 16, 1899. Has had discharge from right ear for one month. Has had swelling and tenderness over right mastoid for one week.

On admission has discharge from right ear, great swelling over mastoid, and some fever. The usual exposure was made, and pus

and necrosed mastoid was found; all pus and necrosis removed; middle ear not disturbed.

January 6, 1900.—Patient made uneventful recovery. There is now no discharge from ear, and mastoid wound healed. Hears watch tick at six inches.

CASE X.—J. F., male, aged six years; admitted to hospital November 17, 1899. Has had suppurating right ear for three years, probably longer, and had a Wilde incision more than three years ago. On admission had great swelling over right mastoid, which contains large quantity of pus.

The usual incision was made, pus evacuated, mastoid thoroughly curetted, posterior wall of canal removed, and middle ear cleaned out.

January 8.—Has made an uneventful recovery. General condition greatly improved. Wound does not discharge, but has not entirely closed. He had practically no hearing in this ear prior to operation, and will probably have very little more in future.

CASE XI.—C. H. S., male, aged twenty-five years; admitted to hospital November 27, 1899. Has had discharge from left ear for four months, which stopped for about five days a short while prior to admission. About three months ago had pain over mastoid, and has had intermittent mastoid pain ever since. For several days prior to admission had severe pain over mastoid, accompanied by fever, and has lost a great deal of flesh.

The usual skin incision was made and mastoid opened. It was very hard, cells small, and each one contained a small drop of pus. This was all cleaned out, and communication to middle ear established.

November 1.—Patient is now practically well. Mastoid wound about healed. Drum has healed. Can hear a watch tick at one inch. General condition of patient good. Has gained twenty pounds since operation.

CASE XII.—G. Z., male, aged thirty-one years; admitted to hospital December 28, 1899.

October 17, 1899.—Complained of impaired hearing.

October 21.—Had pain in left ear, with swelling and congestion of drum. No perforation.

December 14.—Tenderness over mastoid, but no perforation.

December 28.—Has large fluctuating swelling above and behind mastoid, and some fever.

December 29.—This fluctuating swelling was incised, and found to be a sub-periosteal abscess over upper and back portion of mastoid. Mastoid was then opened and found healthy.

March 5, 1900.—Patient made an uneventful recovery, and can hear watch tick at fifteen inches.

A professional friend of mine some months ago stated that he thought the mastoid operation was rarely, if ever, justified, as it was such a dangerous operation.

In the series we have under consideration there was only one death, and in that patient I am quite sure life was prolonged sev-

eral weeks. All the other cases were greatly benefited as far as general health was concerned, and in many instances hearing was greatly improved, and in some instances I am sure death was averted.

Four of these cases had the Wilde's incision, which neither stopped the otorrhea nor prevented subsequent attacks of mastoidits.

I am not very enthusiastic about breaking down the posterior wall of the canal and cleaning out everything in the middle ear, as this procedure is almost sure to materially injure the hearing, and is very much slower to heal.

I think we cannot too strongly condemn the old Wilde's incision and all other palliative measures, and that a mastoid operation should always be done when the diagnosis is clear.

Current Literature.

MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

DIABETES, GLYCOSURIA AND PENTOSURIA.

PHYSIOLOGICAL GLYCOSURIA.—ALIMENTARY GLYCOSURIA IN DISEASES OF THE LIVER, GALL-BLADDER AND PANCREAS, IN NERVOUS AND MENTAL DISEASES, AND IN PNEUMONIA.—THE THEORY OF ALIMENTARY, SPONTANEOUS, AND DIABETIC GLYCOSURIA.—TRANSITORY GLYCOSURIA AFTER ETHER ANESTHESIA.—THE METABOLISM IN DIABETES—THE PRODUCTION OF SUGAR FROM PROTEID AND FAT.—THE BLOOD IN DIABETES.—CHRONIC PENTOSURIA.—ALIMENTARY PENTOSURIA IN DIABETICS.

The subject of the elimination of the various members of the sugar family under different conditions in health and disease has been much written about, and yet the etiology of the carbohydrates in question is still in such doubt that it may prove of interest to review briefly some of the recent contributions upon this subject, this being especially *apropos*, as during the past twelve months pertinent articles of great value have appeared.

PHYSIOLOGICAL GLYCOSURIA.

BRUGNOLA (*Gazz. degli. ospedali e delle clin.*, 1899, No. 135) devotes his article especially to a consideration of the results obtained by Johnson and Piltarelli, who denied the existence of a true physiological glycosuria, ascribing the positive results obtained by others to the presence of uric acid, creatinin, ammonium compounds, etc., which, as is well known, have a distinct reducing action, and therefore give positive results with many of the tests

for glucose, notably Fehling's test, which is the one upon which the great majority of clinicians rely. While Brugnola does not, of course, deny the ability of these nitrogenous reducing agents to simulate some of the tests for sugar, he nevertheless tests the urine by the more delicate methods after those substances have been eliminated. He does this by precipitating the nitrogenous substances by the Liebig-Pflueger titration method, after which he positively proves the presence of glucose by that most trustworthy of all sugar tests, the test with phenylhydrazin.

These results thus agree with those commonly held, and with the experiments of Abeles, Wedenski, Schilders, Moritz, Baisch and Kleen, and seem to show that there is a faint trace of glucose in the urine of absolutely normal and healthy individuals.

ALIMENTARY GLYCOSURIA.

Few subjects in the chemistry of metabolism have been of more interest during the past few years than that of alimentary glycosuria, *i. e.*, the distinct glycosuria that follows the ingestion of a certain amount of sugar (100 grammes) in various diseases and morbid conditions, the interest, of course, being largely because of the hope that by means of these researches more light would be thrown upon the whole subject of sugar formation in the body.

Perhaps the greatest interest lies in the results obtained in diseases of the liver and gall-bladder, of the pancreas, and of the central nervous system.

As to diseases of the *liver* and *gall-bladder*, Exner in 1898 (*Deutsche medicinische Wochenschrift*, 1898, XXIV, 31) started much discussion by stating that he obtained alimentary glycosuria in thirty-nine out of forty cases of gall stones. He used Trommer's, Nylander's, the fermentation, polariscopic and phenylhydrazin tests for sugar, and he concluded from his results that the reaction might be of value in the diagnosis of doubtful cases with symptoms suggestive of the presence of gall stones.

Kausch (*Deutsche medicinische Wochenschrift*, 1899, No. 7) violently opposed these views of Exner. He studied eighty-five cases in all, in seventy of which the diagnosis was confirmed by subsequent operation. In only one case did Kausch find sugar in the urine, and he severely criticised Exner's results, which criticism Exner answered (*Deutsche medicinische Wochenschrift*, 1899, No. 11), although furnishing no new proofs of his results. The matter is thus in *statu quo*, with the burden of proof, however, it seems to us, resting on Exner.

De Haan (*Archiv für Verdauungs Krankheiten*, Vol. IV, part I) discusses alimentary glycosuria in diseases of the liver proper. He studied twenty-nine cases of liver disease, and in eighteen of these a transitory glycosuria was noted after the ingestion of 150 grammes of cane sugar. Notwithstanding Hanot's views, this ali-

mentary glycosuria cannot be used to diagnose different kinds of cirrhosis, as it was found in seven of ten cases of Hanot's cirrhosis (*hypertrophic cirrhosis*). With one exception, the glycosuria came only in those cases where there was fever, cachexia, or bad appetite. Control experiments showed that no sugar was eliminated in the urine after the ingestion of the same quantity by mouth in all the people experimented upon except two cases of chronic nephritis.

STRAUSS (*Berliner klinische Wochenschrift*, 1898, No. 51) gave 100 grammes of grape sugar on an empty stomach to each of thirty-eight cases of *hepatic disease*, and in only two did glycosuria occur. Experiments carried on upon animals, according to Strauss, demonstrate that frogs with their livers removed are able to consume practically as much glucose as other frogs, and from the results of these two sets of experiments Strauss concludes that "a disease localized solely in the liver is probably incapable of producing unaided diabetes mellitus, some additional disturbances—neurosis, etc.—being necessary."

ROMARO (*Gazz. degli. ospedali e delle clin.*, 1899, No. 88) also throws considerable doubt upon the belief that a direct relationship exists between glycosuria and diseases of the liver. In the forty-six cases of various diseases studied by him only eight showed an alimentary glycosuria, and none of these eight had any hepatic disorder whatsoever. In two cases of hyperemia of the liver of high grade, however, in the precirrhotic stage, a trace of sugar was found in the urine. Further, in none of the eight cases was there the slightest lesion of the respiratory or renal organs. On the other hand, all the cases that gave the positive result were especially of a "lymphatic constitution," and the author therefore thinks it possible that there may have been an incomplete oxidation of the sugar in the blood, and perhaps a certain relationship between this and diabetes. He considers the development of connective tissue in lymphatic individuals, as well as the immoderate production of fat, as a degenerative sign, and agrees with Giovanni in the view that in diabetes, as in polysarca and gout, it is not a question of slowing of the metabolism, but a disturbance of metabolism which causes a species of degeneration and degradation of the race.

No especially recent work has been done upon alimentary glycosuria in *nervous* and *mental diseases*, but it will be well, perhaps, to mention in passing that Van Ordt (*Muencheuer medicinische Wochenschrift*, 1898, XLV, I) found it to be present in a certain percentage of cases of diseases of the meninges, due to their nearness to the diabetic center (in the floor of the fourth ventricle) and to central disturbances of nutrition, to functional neurosis, neurasthenia, hysteria, and traumatic neurosis, while it was absent in a great number of other neuroses, in genuine epilepsy, and in diseases of the spinal cord where the medulla is not involved; that

Goldschmidt ("Inaugural Dissertation," Berlin, 1896) found that alimentary glycosuria was more common in people with Graves' disease than in sound people, and that Arndt (*Berliner klinische Wochenschrift*, 1898, No. 49) found it in 32.6 per cent. of his cases of neurasthenia, hysteria, and hypochondriasis of non-traumatic origin, and 10 per cent. of paralytics.

Especial interest has, of course, always been attached to the relationship between the *pancreas* and glycosuria, due to the experiments of Von Mering and Minkowski, and Lanceraux.

WILLE (*Deutsches Archiv für klinische Medicin*, Vol. LXIII, parts 5 and 6) discusses alimentary glycosuria in relation to diseases of the pancreas. He examined a large number of patients for alimentary glycosuria, and of the seventy-seven patients so examined who died fifteen had shown alimentary glycosuria *intra vitam*. Ten of these fifteen showed marked pathological alterations in the pancreas (inflammation, atrophy, fatty degeneration, carcinoma). In fact, although other lesions were present, the pancreatic disease was the most marked pathological condition. Wille therefore believes that it is possible to conclude that regularly-appearing, positive alimentary glycosuria after the test meal of sugar furnishes the greatest probability that we are dealing with a severe disease of the pancreas. The fact that lesions of the pancreas are less frequently found in true diabetes than in these cases of alimentary glycosuria is explained thus by Wille: that cases of diabetes may be of very different origins, while alimentary glycosuria is only related to pancreatic diabetes.

PATELLA and LODOLI (*Settimana med.*, 1899, No. 18-20) made a series of studies upon alimentary glycosuria in *pneumonia*, being led to make this study by the fact that liver changes are found so frequently in cases dying of pneumonia. They gave the usual amount of sugar (100 grammes of glucose) in thirty cases, and carefully examined the urine subsequently, not only for sugar, but also for urobilin and indican. In five cases slight glycosuria was noted, in eight cases marked glycosuria, while in seventeen cases no glycosuria was found. Of the first five cases, three died; of the second eight, three died; while of the third seventeen, seven died, thus showing that no prognostic significance can be ascribed to the presence of an alimentary glycosuria. Also, a careful pathological examination of the livers in these thirty cases showed that the alimentary glycosuria cannot in the least be regarded as an expression of the grade of the hepatic disease, but much more as an expression of the pathological changes in the organism as a whole.

THE THEORY OF ALIMENTARY, SPONTANEOUS AND DIABETIC GLYCOSURIA.

STRAUSS (*Berliner klinische Wochenschrift*, 1899, No. 13, and *Zeitschrift für klinische Medicin*, 1900, Vol. XXXIX, parts 3 and 4) furnishes two valuable papers upon the *theory* of *alimentary*,

spontaneous and *diabetic glycosuria*, paying especial attention to the carbohydrate metabolism of those suffering with fevers of various kinds and of habitual drinkers. Strauss devoted his attention to the glycosuria coming after the ingestion of the test meal (100 grammes), both of glucose and of starch, his experiments being made to prove or disprove the frequently-made assertion that alimentary glycosuria ex amylo (*i. e.*, after starch ingestion) may not be a sign of pathological carbohydrate metabolism.

The experiments, which were carried out with the greatest care and detail upon alcoholics, and upon patients with pneumonia, influenza and other of the specific fevers, all seemed to point to the conclusion that the difference between the glycosuria ex amylo and the glycosuria e saccharo was a difference in degree, and not in kind; *i. e.*, many of the patients that exhibited the former would also show the latter, but in a less degree. He concludes thus: "From all these observations and experiments I believe that I may conclude that the alimentary glycosuria e saccharo must also be placed in the list of diabetic disturbances of metabolism. The difference between alimentary glycosuria e saccharo and alimentary glycosuria ex amylo are of an essentially gradual nature. Noxious agencies of a milder type lead under certain conditions to an alimentary glycosuria e saccharo, while noxious agencies of a more severe type diminish also the tolerance to starchy foods."

GLYCOSURIA AFTER ETHER ANESTHESIA.

Although a transitory glycosuria has been described by many observers after the ingestion of certain drugs, notably amyl nitrite, strychnia, nitro-benzol (phloridzin), chloral, curare, etc., nevertheless much doubt is thrown upon many of those observations by the fact that in most of the cases only the simple reduction tests for sugar were made, and it has recently been shown that after the ingestion of a number of drugs a copper-reducing substance, glycosuric acid, or some combination with this acid, is present, and thus the reduction tests alone are insufficient. Von Mering and Minkowski have shown this for chloral; Ewald, Von Mering and Magras-Levy for nitro-benzol and nitro-toluol, and Hoppe-Seyler for ortho-nitro-phenylpropionic acid. Thus all the old reports of transitory glycosuria will have to be carefully gone over and other tests besides the reduction tests made.

Brown (*Johns Hopkins Bulletin*, 1900, May, No. 101) reports three cases of transitory glycosuria after ether anesthesia. The tests made, besides the usual reduction tests, were the polariscopic, fermentation and phenylhydrazin tests, and by these it was shown that all were cases of true glycosuria. In one case the quantity of sugar eliminated reached to between 2 and 3 per cent., while in the other two cases the reaction was marked. In none of these cases had there been any evidence whatsoever of a previous glycosuria, nor was the glycosuria present for but a short time. The

patients, especially two of them, were of markedly nervous temperaments, and it was regarded as probable that the glycosurias, although mostly toxicogenic, were perhaps also partly neurogenic.

DIABETES—THE FORMATION OF SUGAR FROM PROTEID AND FAT.

As in the case of alimentary glycosuria, so in diabetes the most valuable recent contributions have come from the chemical side.

LUTHGE (*Zeitschrift für klinische Medicin*, 1900, Vol. XXXIX, parts 5 and 6) furnishes a valuable article concerning the proteid, fat and carbohydrate metabolism of a diabetic, the research extending over many weeks, and an enormous number of determinations being made. Especial consideration was given to the question of the formation of sugar from proteid and from fat, but experimental pentosuria, the elimination of oxalic acid, phosphoric acid, ammonium derivatives and acetone were also quantitively determined. Lüthge's case showed a marked tolerance of pentose.

As to the formation of sugar from *proteid*, Lüthge concludes that while proteids can form sugar in the organism, and do so in the case of diabetes, there is a marked difference in the sugar output, depending upon the variety of proteid used. Thus, after casein and pancreas feeding the sugar output is higher than after beef proteid, egg albumen or calf's thymus; also in the case of beef proteid the sugar output is greater than after feeding with egg albumen.

As to the formation of sugar from *fat*, Lüthge positively insists that in many cases of true and experimental diabetes no sugar is formed from fat.

ROSENGUIST (*Berliner klinische Wochenschrift*, 1899, No. 28), in speaking of this much-discussed question of the formation of sugar from fat, reports two severe cases of diabetes from Von Noorden's clinic, and from a careful series of analyses believes that he has proven that in these cases, at least, sugar was formed from fat. Speaking of the exceptional character of this method of formation, he thinks that probably the extreme severity of the diabetes in these two cases might play a *rôle*.

COHN (*Zeitschrift für physiol. Chemie*, Vol. XXVIII, p. 211), regarding the mode of conversion of proteid material into fat, gives the results of his experiments on feeding leucin to rabbits. As he found that this was invariably followed by a formation of glycogen, Cohn believes that it is highly probably that this is the midway substance in the origin of sugar from proteid in the body.

THE BLOOD IN DIABETES.

A considerable amount of work has been done of late upon the *blood* in *diabetes*, the objects of these investigators being to test the value of the tests originally brought out by Bremer and by Williamson.

LUCIBELLI (*Gazz. degli ospedali e delle clin.*, 1899, No. 130) regards the tests of Bremer (the decolorization of a 1 per cent. methy-

lene-blue solution by the blood of diabetics) as of less value than Williamson's, as the former test also reacts positively to the blood in leukemia, pseudo-leukemia, Basedow's disease, etc.

Williamson's test as performed by Lucibelli is as follows: Forty c. c. of distilled water are placed in a glass, a drop of blood obtained under careful aseptic precautions is added, and then 1 c. c. of a 1:6000 watery solution of methylene-blue and 40 c. c. of sodium hydroxide solution. The glass is then placed in a thermostat and kept there for from four to five minutes. In the case of diabetic blood, the solution either becomes decolorized, or takes on a dirty greenish hue, while in normal blood the blue color of the solution is preserved, although sometimes becoming slightly less intense.

Lucibelli has carried out these tests for a long time in his Neapolitan clinic, and believes that the reaction is more sensitive, rapid and permanent than the urine reaction, as the blood still reacts positively after the sugar has entirely disappeared from the urine.

Muller (*Muenchener medicinische Wochenschrift*, 1899, No. 25) comes to the same conclusions as Lucibelli regarding the value of this test, calling especial attention to its value in the diagnosis of diabetic coma, where it may be impossible to obtain a specimen of urine.

PENTOSURIA.

This interesting phenomenon of metabolism, the elimination of the members of the pentose group of sugars (which has but five carbon atoms in the molecule) instead of glucose (which contains six atoms), has been described in a few cases of diabetes, and in animals after phloridzin feeding and after extirpation of the pancreas. In all these cases, and in a few other isolated cases, as Salkowski's original case of a morphine *habitue*, the pentosuria is associated with a glycosuria. In a few cases, however, we have a chronic pentosuria, where the sole error of metabolism is the presence of pentose in the urine, there being no other member of the sugar family present.

Salkowski and Blumenthal described the first two cases of chronic pentosuria, and Bial (*Zeitschrift für klinische Medicin*, 1900, Vol. XXXIX, parts 5 and 6) adds two more, these four apparently comprising all the cases thus far recognized. The most valuable tests for the recognition of pentose in urine are the orcin and the phenylhydrazin tests.

Von Jaksch (*Deutsches Archiv für klin. Medicin*, Vol. LXIII, parts 5 and 6) has found by feeding members of the pentose group —arabinose, xylose and rhamnose—to diabetics that about one-half of the first two are eliminated unchanged in the urine and feces, but only traces of xylose are found in the urine. All seem to cause a considerable increase of proteid destruction, all three increase diuresis, while arabinose and rhamnose also set up diarrhea. For all the above reasons it is obvious that pentoses are utterly unfit diet for diabetics.

SURGERY.

Under the Direction of Hugh H. Young, M.D.,
Assisted by Wm. E. Huger, M.D.,
Baltimore.

ACUTE, DIFFUSE PERITONITIS DUE TO THE GONOCOCCUS.

Lebovigi, in *Le Progrès Médical*, August 25, 1900, gives Dr. Ernest de Leyden's (Berlin) recent communication to the Society of Internal Medicine of Berlin, which he calls "A Remarkable Case of Acute Peritonitis Due to the Gonococcus." He claims that this is the first time that an acute, diffuse peritonitis, apparently gonorrheal, has been confirmed by cultural methods. He says:

"As to the presence of the gonococcus in acute, diffuse peritonitis, observers have not been able to agree even up to the present time, although the gynecologists are, as a rule, inclined to believe it probable. Doederlein is the only one who has published a case in which an exudation from between the intestinal convolutions contained gonococci, and, besides that, two American physicians have reported two cases of acute, diffuse peritonitis in which the gonococcus was recognized as the only cause of the disease. But in none of these cases was cultural proof furnished.

"In de Leyden's case demonstration of gonococcus by pure cultures place it beyond doubt, and it ought to be regarded as the first irrefutable proof which has been made of an acute, diffuse peritonitis due to the gonococcus."

Perhaps we will have to exclude Wertheim's case (*Centralb. f. Gynäkologie*, Bd. XVI, p 385, 1892), because he only had to deal with a pelvic peritonitis. But he succeeded on blood serum agar in cultivating gonococci taken from this localized area. This is the first case, and, in fact, only one, in which Cushing, after a careful search of the literature, could find that gonococci had been grown in pure culture from a peritonitis.

In the *Johns Hopkins Hospital Bulletin*, May, 1899, just about eighteen months before de Leyden's case, Dr. Harvey W. Cushing gives two most interesting ones, with careful bacteriological reports by Dr. Hugh H. Young. Young again describes the bacteriology more in detail in his contribution, "The Gonococcus," in "Dr. Welch's Festschrift."

Case I.—*Acute abdominal symptoms during menstruation and following gonorrhea. Laparotomy. General Peritonitis. Recovery.*

Peritoneum.—Smears and cultures were made from the large flakes of fibrin which were adherent to the intestines; very little fluid pus present. The smears showed pus cells and fibrin without bacteria. Cultures made on agar slants were negative after several days in the thermostat. Cultures on ascitic fluid agar (inoculated with pus and fibrin which had been on an agar slant for twenty-four hours) showed no growth after many days in the thermostat.

Cushing notes: "The demonstration in this case of gonococci on cover-slip preparations from the peritoneum made and examined during the operation showed that the peritonitis was not simply of a chemical nature (as believed by Menge, Travel and Lanz), as the negative cultural findings upon the ordinary media inoculated in the operating-room might otherwise have led us to believe."

Case II.—*Acute abdominal symptoms during menstruation simulating appendicitis. Laparotomy. General peritonitis. Recovery.*

Peritoneum.—A smear from the peritoneal cavity shows four typical gonococci, all intracellular, too few to apply the Gram stain.

Cultures.—(1) Bouillon culture from pus from peritoneal cavity shows no growth after three days in the thermostat.

(2) Another bouillon tube, into which a large mass of fibrin stripped from the under surface of the liver was dropped, shows slight cloudiness in the bouillon at the bottom of the tube (around the fibrin) after three days in the thermostat.

Cover-slips made from this show numerous, fairly large diplococci, biscuit-shaped, and otherwise typical, morphologically, of the gonococcus. Numerous cover-slip preparations were made, and all show diplococci in great numbers, and nothing else. All decolorize by Gram's method.

Cultures from this bouillon and also from the fibrin show no growth on ordinary agar after many days in the thermostat.

(3) A hydrocele fluid agar tube was inoculated with a small mass of fibrin which was removed from Douglas' pouch. After twenty-four hours in the thermostat pin-point colonies were seen on the surface of the medium adjacent to the fibrin. At the end of forty-eight hours they were as large as a small pinhead and semi-translucent in appearance.

Side-smear preparations show diplococci, morphologically, the same as the gonococci, in pairs and tetrads. All were completely decolorized by Gram.

Transfers on agar from colonies on the hydrocele agar showed no growth after many days in the thermostat.

The fact that the bouillon culture was taken from just beneath the liver is also conclusive evidence that the gonococcus infection was general throughout the peritoneal cavity.

Wm. E. Huger, M.D., Baltimore.

* * *

A Critical Survey of Ureteral Implantations. J. Wesley Bovee. *Annals of Surgery*, August, 1900.

The author has made an exhaustive study of the literature on the subject of ureteral implantations.

He notes with pleasure that surgeons are enabled now to have some alternative, and not just do a nephrectomy recklessly after an injury to a ureter, perhaps during an operation. Life has been needlessly sacrificed thus, because, as autopsy showed, there was only one useful kidney, and that was the one removed.

The severed end of the ureter has been implanted into the other end, the bladder, the urethra, the rectum, the colon, the cecum, the vagina, and even the skin. The pelvis of the opposite kidney and the opposite ureter as depots have not escaped consideration.

All agree that, where possible, reconnecting the two pieces of severed ureter is best. This is done by four principal methods, viz.:

(1) Transverse end-to-end. Has been done twelve times.

(2) End-in-end. Has been done nine times.

(3) Lateral implantation, or end-in-side. Has been done five times.

(4) Oblique end-to-end. Has been done only by the author, and the patient is alive and well four years later.

Narrowing of the ureter at the point of junction is, of course, most likely after the transverse end-to-end suture. In the oblique end-to-end method this feature is obviated. A dilated end can be made to fit a normal end by beveling it less than the end of normal caliber.

Uretero-cystostomy has been done eighty times. Tauffer reported it first in 1877, though Navaro (1893) is credited by most writers as being the first.

If the choice be given, the extra-peritoneal route is by far the best, though in two of the principal methods the peritoneum is opened as a preliminary step.

In quite a number of cases the operation failed from lack of union, generally due to too great tension on the tissues of both ureter and bladder.

This has been overcome in a few cases by means of traction-sutures placed in the end of the ureter in the bladder and brought out through the urethra, where they were sutured to the end of the urethra or attached to the dressings. Kelly and others have stitched the bladder high in the pelvis to the broad ligament or some other structure in order to prevent downward traction on the sutured junction.

Rectal implantation has been done sixty-five times, with a mortality of 30 per cent. Nine per cent. died because of the condition calling for the operation. Eleven per cent. died in from five days to two years after operation, due to infection of the kidney or some other untoward result of the rectal grafting.

Five different methods have been employed, viz.:

(1) The formation of a fistula between ureter and rectum.

(2) The axial implantation of the ureter stump into the bowel, and its fixation there by means of the Lembert or the double-row suture.

(3) Implantation of both ureters with a piece of the bladder, as by Maydl, Passa and others.

(4) Implantation of both ureters with a small amount of the bladder mucous membrane.

(5) By means of apparatus, such as those of Chalot and Boari.

SKIN IMPLANTATION.

The history of this plan of diverting the ureter is by no means encouraging. It is believed that the danger of infection from skin implantation is greater than where it is grafted into the bowel, and that nephrectomy is to be expected.

This method has been used ten times.

IMPLANTATION OF THE URETER INTO THE VAGINA.

Three times this has been done, and all were successful. Nevertheless little can be said for the method. It seems to graft a perpetual infirmity upon the individual.

URETHRAL GRAFTING.

Urethral grafting of ureters has been reported five times, four out of the five having been done for ectopia vesicae.

It is believed that this operation has a limited field, but as a substitute for Maydl's operation for ectopia vesicae it probably is a failure.

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A STUDY OF TWENTY-FOUR CASES OF TYPHOID FEVER, WITH SYMPTOMS OF PERITONEAL INFECTION.—LAPAROTOMY. Reported by Geo. B. Shattuck, J. Collins Warren and Farrar Cobb, Committee of the Boston Society for Medical Improvement. *Boston Medical and Surgical Journal*, June 28, 1900.

All of the twenty-four cases had symptoms upon which a diagnosis of intestinal perforation was made and for which an operation was performed. Eighteen cases had a positive Widal reaction. In three cases a Widal test was not made, and in three the Widal was negative. But in all these six cases the findings at operation or post-mortem fully corroborated the diagnosis of typhoid fever.

Three cases presented symptoms strongly suggestive of intra-abdominal infection, and accordingly were operated upon with a diagnosis of intestinal perforation, but at the operation no positive cause for the symptoms was found.

Out of the twenty-four cases of true typhoid only seventeen were cases of peritoneal infection from actual perforation of the intestinal walls. Two cases were of general infection from threatened perforations or areas of necrotic peritoneum; one case of general infection from a ruptured mesenteric gland; one case of general infection from an unknown cause, presumably intestinal perforation; three cases had no certain cause for the symptoms which demanded operative interference.

Diagnostically, and from the standpoint of treatment, all these cases should go in under the head of actute peritoneal infection in the course of typhoid fever. We will divide the perforations from the other cases, however, for analysis:

Of the twenty-four cases, eighteen were males and six females. Acute abdominal infection occurs most often in young adults between the ages of eighteen and thirty. It is most frequent in men

and rare in children. In eighteen of the cases the clinical nature and course of the typhoid *was mild*, and in fifteen of these perforation or general septic peritonitis was present. The three cases which presented symptoms without certain cause were mild cases.

Six cases were *severely-sick* typhoids. All of these had general septic peritonitis from actual or threatened perforation, and all died.

These facts are in accord with the accepted knowledge that intestinal perforation in typhoid occurs as often in cases of a mild type as in those of a severe character.

The sudden fulminating symptoms in the severely-sick cases were usually due to a general septic peritonitis which was often unsuspected and had slowly progressed. On the other hand, a sudden, acute onset in the mild type more often meant sudden intestinal perforation with extravasation. In certain severely-sick cases a diagnosis of the onset of the peritoneal infection is practically impossible.

Intestinal hemorrhage must indicate extensive ulceration of the intestinal wall, which may mean proximity to the peritoneal coat of the intestine, and, being a danger signal of perforation, should demand a close watch for the symptoms of beginning peritoneal infection, frequent examination of the abdomen to detect tenderness or abnormal rigidity and muscular spasm, associated with frequent leucocyte counts. The occurrence of acute abdominal pain following and coincident with intestinal hemorrhage should lead to the suspicion of peritoneal infection.

THE WEEK IN THE DISEASE IN WHICH PERITONEAL INFECTION TOOK PLACE.

Of the cases in which perforation and general peritonitis existed the acute abdominal symptoms appeared in five cases at the end of the second or first of the third week; in eight cases at the end of the third week; in one case during the fourth week; in four cases during the fifth week; in one case during the sixth week; in one case during the ninth week, and in one case during the eleventh week in a relapse. Of the cases operated on under a mistaken diagnosis one was in the fourth, one in the fifth, and one in the sixth week.

The diagnostic symptoms of intestinal perforation in typhoid as they are usually understood, namely, sudden abdominal pain, fall of temperature, collapse, general abdominal rigidity and tenderness, with or without vomiting, anxious facies, coming on without warning, do not present themselves as a complete picture in any one of this series of cases. The majority of the cases show records of definite warning symptoms, or, in other words, present evidences of a gradual onset of peritoneal infection.

It is, in fact, rational to conclude from a study of the symptoms in these cases, together with the findings at operation, that the severe symptoms corresponding to the ordinary text-book picture of intestinal perforation in typhoid were, in the majority of cases,

caused by the general septic peritonitis, resulting from a perforation, or a threatened perforation, the occurrence of which (the perforation or local area of infection) was indicated more or less plainly by symptoms of less severity, which antedated the severe or so-called diagnostic symptoms by a definite number of hours.

Seven cases of the twenty-one in which operation found cause for the symptoms presented a sudden, acute picture of grave abdominal infection without *any* premonitory symptoms. Of these seven, five were mild typhoids, whose general and mental condition was favorable to the noting of abdominal pain. The sudden onset in five of these seven cases, which was proved to be due to actual perforation, presents a different picture from the two in which general peritonitis was the cause of symptoms. In the former we have the symptoms of severe pain coming on without warning, more or less localized in the right iliac region, accompanied by localized muscle spasm and tenderness, with varying amount of shock. In the latter, in which the symptoms were due to general peritonitis, we have a picture suggesting general peritonitis, marked collapse, great distension, and general tenderness and rigidity.

In mild typhoids the appearance of sudden, severe abdominal symptoms without previous abdominal pain or tenderness most often means sudden intestinal perforation. In the very-sick and lethargic cases the appearance of severe abdominal symptoms without warning most often means the presence of general septic peritonitis, the gradual onset of which it has been impossible to diagnose because of the sick and stupid condition of the patient.

The occurrence of chills as a symptom of peritoneal infection in typhoid is rare.

There were fourteen cases with more or less gradual onset of the abdominal symptoms. Eleven of these were cases of intestinal perforation and resultant general septic peritonitis; two were cases of general peritonitis without perforation; one a case of general septic peritonitis of unknown origin, though probably due to perforation. In all these fourteen cases *distinct warning symptoms* antedated equally distinct, severe and diagnostic symptoms. In every one recorded *complaint by the patient of abdominal pain* was followed by peritoneal infection.

The severe abdominal symptoms in every case determined the diagnosis and the decision to operate. In general these symptoms were those of general septic peritonitis, namely, general abdominal pain, general tenderness and rigidity, with distension, collapse, poor pulse and anxious facies. In only three cases was there any vomiting. The classical sudden fall of temperature is not present in many of the cases. The temperature fell somewhat in a few cases. In six cases there was no fall, and in three cases it is recorded as rising.

The constant symptoms in every case are abdominal pain, general tenderness and rigidity, with distension, associated with collapse and rapid, feeble pulse.

THE TIME OF OPERATION AFTER SYMPTOMS APPEARED.

The number of hours elapsing before operation in the fourteen cases with premonitory symptoms averaged twenty-three. The longest time was sixty hours, and the shortest six, after the first pain and warning symptoms. After severe symptoms the longest time before operation was twenty-four hours, the shortest two.

THE SITUATION OF THE PERFORATION AND OF THE DAMAGED AREAS.

In every case the perforation or impending perforation was in the ileum, varying from close to the cecum to four feet from it. The size of the perforation varied from a "pin's-head" to "dime-size." Only one case had two perforations, and these were close together. The method of closure of the perforation in every case but one was simple inversion with silk sutures. The exceptional one was excised and the edges inverted with a double row of silk Lembert sutures. This case died thirty-six hours later with symptoms of intestinal obstruction. Autopsy showed that at the site of suture the lumen of the intestine had been very materially reduced, and was obstructed by a moderate amount of hard fecal matter.

In three cases, in addition to suturing perforations or threatening perforations, suspicious thin places in the intestinal wall were inverted.

The right iliac incision proved most capable of allowing speedy access to the infecting lesion.

PERITONITIS—KIND, AMOUNT, WITH THE BACTERIOLOGICAL FINDINGS.

Unfortunately, the bacteriological data are very insufficient in this series of cases.

Three cases, operated on one and one-half, three and eight hours after the sudden onset of peritonitis, had no visible macroscopic signs of general peritonitis. All these cases died, one a week and two nearly three days after operation, and of the latter only one had a general peritonitis.

Vincent, Flexner and Fraenkel have shown that a streptococcus peritoneal infection in typhoid is usually a fatal complication. Cushing reports a case in which operation was done within an hour or two after perforation, and at the operation no visible signs of general peritonitis were present. Cultures and cover-slip from the fecal fluid pouring out of the perforation in the intestinal wall showed large quantities of streptococcus, and the case died of streptococcus peritonitis.

General septic peritonitis in typhoid arising from threatened intestinal perforation from the increased and damaged areas of peritoneum over the base of the ulcers must be accepted as a not very uncommon occurrence.

In regard to the seven cases with sudden onset of symptoms, three had no general peritonitis evident to the eye; one had limiting adhesions around the perforation, with no general peritonitis;

two cases had slight evidence of general peritonitis. These are the most favorable cases for operation, because the interference is directed against the infecting cause, and not, as a later operation would be, against the resulting general infection. In these typhoid peritonitides the typhoid bacillus has been rarely found.

Of the fourteen cases of gradual onset, or with early warning symptoms, in every one visible peritonitis was found at operation, and in the majority of cases it was evidently of comparatively long standing.

The prevailing type of peritonitis noted was the sero-purulent, with fibrin flakes in the turbid fluid and adherent fibrin patches on the intestine. Nine cases had feces or fluid fecal matter in the intestinal cavity, or fluid with a fecal odor. All of these cases were intestinal perforations. Two cases of intestinal perforation had a cloudy, turbid fluid without fecal odor.

Flexner and Cushing dwell upon the necessity of making cover-slip preparations, as well as plate cultures, at the operation from the abdominal contents in cases of peritonitis, because of the well-known fact that the bacillus coli communis overgrows the other organisms in the mixed infection. Cushing says: "Undoubtedly the colon bacilli, being more in evidence, were frequently responsible for peritoneal infection, due to more virulent but culturally less active organisms."

DIAGNOSIS.

So far our study of these cases has shown that the diagnosis in fourteen cases out of twenty-four was apparently made later than it might have been, and in seven cases only once was it made as soon as possible, and that in three cases a mistaken diagnosis was made.

It seems fair to suppose that the majority of cases of intestinal perforation present a slow intestinal infection, or a gradual onset, or that actual perforation may take place without fulminating symptoms.

Intestinal ulcers may certainly cause a local peritoneal infection and bacterial involvement of the peritoneal coat without actually or before actually perforating. This local infection may cause general infection without adhesion formation and without perforation. Local infection of the peritoneum causes pain of greater or less severity. This pain may not be appreciated and complained of in very sick and stupid typhoid, but in mild cases may be just as prominent a feature as the pain from the local peritoneal infection of appendicitis before perforation has taken place.

From a study of these cases and also the cases reported by Cushing it would seem that complaints of abdominal pain in any typhoid case, especially if localized, and especially in cases of mild type, should be regarded as serious danger signals.

To confirm the suspicion of beginning peritoneal infection a leucocytosis, steadily rising, during a few hourly counts, at least, should accompany this pain. Vomiting is rare. The temperature generally rises and also the pulse.

Localized muscular spasm and localized tenderness are diagnostic signs of the utmost importance when associated with pain and leucocytosis.

It is certainly misleading to state that most cases of recovery from symptoms of perforation are those in which an attack of appendicitis is closely simulated, because many of these cases had beginning symptoms which suggested appendicitis, and yet the perforation was in the ileum, and the peritoneal infection became general and fatal.

Perforation of the appendix may occur in typhoid, although *rarely*. The great majority of cases of perforation of the bowel in typhoid fever may simulate an acute appendicitis.

LEUCOCYTOSIS AS A DIAGNOSTIC SIGN.

A careful comparative white-blood count at frequent intervals in the presence of abdominal pain in typhoid may furnish the most valuable evidence of beginning peritoneal infection. Thayer, in 1892, first showed that in typhoid fever the white-blood corpuscles are less than normal, or, in other words, that a condition of hypoleucocytosis exists, and that the smallest number of leucocytes is usually found at a period of time corresponding to the height of the fever. Cabot pointed out that a low leucocyta count in typhoid meant freedom from septic complications. Any septic complication causes a leucocytosis. Finney considers the most important symptoms of perforating typhoid ulcer to be "marked increase in the number of white-blood corpuscles in association with continued abdominal pain."

Cushing says: "If this septic complication, namely, complication causing leucocytosis, is a peritonitis which remains localized, associated possibly with a perforative stage of ulceration, or with a circumscribed, slowly-forming peritonitis after a perforation, it may be, and usually is, signalized by an increase of leucocytes in the peripheral circulation. If, however, a general septic peritonitis follows, the leucocytosis may be transitory and overlooked, as it disappears concomitantly with the great outpouring of leucocytes into the general peritoneal cavity.

"In order that the white-blood count be of any diagnostic value whatever in the presence of abdominal symptoms it is essential that, for the purpose of comparison, previous counts have been made."

Certainly a single blood count on the appearance of abdominal symptoms may be of little or no value.

Any septic focus (not peritoneal) might furnish cause for leucocytosis, and, coincident with abdominal symptoms, has more than once led to an exploratory laparotomy with negative findings.

RESULTS.

Taking the twenty-four cases of typhoid fever which were operated on, twenty-one with abdominal infection and three with no infection found at operation, we have six cases of recovery from laparotomy in typhoid fever, or 25 per cent. Of the twenty-one

cases in which the local or general peritoneal infection was found at operation, three cases recovered absolutely, or 14.3 per cent. The mere abdominal operation in a slight or moderately severe typhoid is not a very fatal thing when no peritoneal infection is present.

Irrigation of the peritoneal cavity with hot salt solution or hot sterile water was practiced in every case of general peritonitis but one. Drainage with gauze, or with tube and gauze, was used in every case except two, both of which died.

The surgical opinion is practically unanimous the world over that the operation of septic peritonitis must include free incision, careful cleaning of the abdominal cavity by wiping, irrigation and free drainage.

CONCLUSIONS.

From the foregoing analysis of the material we can definitely conclude that:

(1) In many very-sick typhoids perforation or peritoneal infection cannot be diagnosed until the results are already widespread and of fatal extent. The chances of a fatal issue from an abdominal operation in such cases are overwhelming.

(2) In mild typhoids of fair general condition an abdominal operation is readily borne, provided no peritoneal infection is present.

(3) A small number of mild typhoids may have sudden perforation, with free extravasation. In these the symptoms are fulminant, but localized to a great extent, and in these—

(4) Operation must be done at once, for general infection may become past relief in from one to five hours, and walling off of the perforation by protecting adhesions is so rare as not to be counted upon.

(5) In the majority of mild cases beginning infection (whether from perforation or not) is marked by comparatively light symptoms—local pain, tenderness, spasm and leucocytosis. The severer following symptoms mean general peritonitis.

(6) These warning symptoms demand serious consideration and study, but in many cases are either not rightly understood or not acted upon.

(7) Complaint of abdominal pain in a case of typhoid should always lead to a suspicion of beginning peritoneal infection.

(8) Frequent leucocyte counts are needed in every case of typhoid. In the presence of abdominal pain an hourly count is necessary.

(9) Pain, associated with local tenderness and muscular spasm, and a rising white-blood count, points in most cases to an operation; in all cases to a surgical consultation.

(10) In not a few of this serious of cases operation was imperative a varying number of hours before it was done.

If it can be appreciated that the severer symptoms more often mean general peritonitis, it must be understood that the milder and earlier symptoms are the important ones.

DISEASES OF CHILDREN.

By Jose L. Hirsh, M.D.,
Baltimore.

On Enuresis and "Irritable Bladder" in Children. F. Bierhoff. *Jacobi Festschrift.*

The author contends that these conditions are not, in the greater porportion of cases, pure neuroses, but manifestations of local changes in the urethra or bladder. By enuresis is meant the condition in which the urine is discharged from the bladder without the knowledge or consciousness of the patient, occurring usually as nocturnal incontinence. By "irritable bladder" is meant that condition in which there is an abnormally frequent or increased desire to urinate, the desire occurring at times so suddenly that the urine is discharged against the will of the patient. Owing to the difficulties of cystoscopic examination in children no exact data have been obtained, and the hypothetical causes are too numerous to mention.

Guyon says that the influence of heredity is unmistakable. Desault believes excessive irritability of the bladder to be a predisposing cause. Nicolaysen was able in eight cases of nocturnal enuresis to demonstrate bacteriuria.

In treatment of these cases Bierhoff addressed himself to the local vesical or urethral changes as well as to the remoter factors.

When the patients were too small to admit of direct local treatment, hot sitz baths once or twice daily were employed, with the restriction of fluids in the evening. At night the child is laid so that the head will be higher than the hips. Where local treatment is possible applications are made through the endoscopic tubes directly to the sphincter, or to the mucous membrane of the trigonum, or by vesical irrigations and instillations.

In an appendix to his article the author gives the histories of a number of cases treated along the line mentioned, with highly beneficial results.

* * *

Tabes Dorsalis in Children, with Remarks upon the Relation of Tabes to Syphilis Hereditaria. L. V. Dydynsky. *Neurolog. Centralblatt*, 1900, No. 7.

Dydynsky reports the following unusual condition:

M. K., male, aged eight years; has had no infectious disease; physically and mentally well developed. When five years old parents observed that he could not hold his water, which dribbled away. Enuresis nocturna. This was the only complaint until recently, when he began to complain of shooting pains in the legs.

Physical Examination.—The gait of patient shows nothing abnormal; no ataxia, but the patient asserts that he becomes very

tired on slight exertion, and frequently falls when he runs. Romberg's symptom well marked; muscles and nerves react normally to both faradic and galvanic current. Patellar reflex and ankle klonus completely absent. Speech unaltered. Sensation of touch and pain diminished in lower extremities. Pupils unequal; right more dilated; do not react to light, but react slowly to accommodation.

Patient complains chiefly of inability to hold his water; at times difficulty on urination. Examination of bladder negative. Pains in legs have increased of late—the typical lancinating pains of tabes. Tingling and areas of paresthesia. Occasional attacks of vomiting.

The father of the patient had syphilis at the age of twenty years, with but little treatment. His wife aborted five times. Patient is the first child after the five abortions. Three other children are living and healthy. Father of the patient also shows symptoms of tabes.

The author thinks that many of the cases reported as tabes in children are in reality cases of Friedreich's ataxia. His case differs from the latter, in that the characteristic symptoms—disturbance of speech and nystagmus—are absent, while the Argyll-Robertson pupil, urinary symptoms, lancinating pains in the legs, paresthesia, are seldom found in Friedreich's disease. Likewise ataxia was but feebly developed in his case.

Excluding the cases of Friedreich's ataxia, reported as tabes, the number of cases of tabes in children so far reported show nothing with which we are not familiar in the adult. One of the chief, and almost the first, symptom is the urinary disturbance. Atrophy of the optic nerve is a prominent symptom. On the other hand, ataxia, one of the earliest symptoms in adults, is often absent or feebly developed in children.

In all cases of tabes in children hereditary syphilis could be traced. The author gives the following explanation why tabes is so infrequent in children: If the syphilitic poison is still markedly present in one of the parents the fetus is apt to be born dead, or dies soon after birth. Comparatively few syphilitic children develop. The sooner a syphilitic marries the more apt is he to have diseased offspring. The syphilitic poison gradually becomes weaker in the parents, until finally it has no influence on the offspring. His case illustrated this. The father, a syphilitic, marries a few years after infection. The first fetus dies in the second month; every succeeding fetus developed further than its immediate predecessor. After five abortions a fully-developed child is born, and the child shows its first symptoms five years later. Then follow three children, who all remain healthy.

The author calls attention to those cases of tabes at the age of seventeen, twenty, and even in adults, in whom a history of hereditary syphilis may often be obtained.

ICTHYOL IN THE TREATMENT OF SCARLET FEVER. A. Seibert. *Jahrbuch f. Kinderheilkunde,* 1900, Bd. 51.

In 1895 Seibert first called attention to the efficacy of inunctions of icthyol lanolin ointment (5 to 10 per cent.) into the skin in cases of scarlet fever. He employs 30 to 90 grammes of the salve every six to twelve hours, and rubs it in thoroughly from head to foot. He has employed it in fifty-six cases, and finds:

1. The edema of the skin quickly disappears.
2. The itching is relieved.
3. Fissures and secondary erysipelatous infections are prevented.
4. In all cases with no complications the temperature after a few hours fall 1° to 3° F.
5. Restlessness and insomnia are avoided, and post-scarlatinal nephritis prevented.
6. The icthyol renders the scales less infectious to others.

Seibert believes by forcing the icthyol into the skin, and so in direct contact with the capillaries and lymph-vessels, that the deleterious action of the bacteria is averted. As, however, our knowledge of the scarlet fever germ is still imperfect, this explanation must be accepted with reserve.

* * *

THE TREATMENT OF WHOOPING COUGH WITH ANTITUSSIN. M. Heim. *Berliner klin. Wochenschrift,* December, 1899.

Antitussin, an ointment consisting of five parts of difluordiphenly, ten parts of vaseline and eighty-five parts of lanolin, is used externally only.

The neck, breast and back are first cleansed with soap and warm water, and then a portion of the ointment, as large as a walnut, is thoroughly rubbed into the skin three or four times daily.

Heim used the remedy in sixteen cases of pertussis, some of which were very severe. It acts as an antispasmodic, and after a few inunctions the asthma, cyanosis and threatened suffocation were markedly ameliorated. Likewise the number of paroxysms was diminished by one-half after one day's treatment. The duration of the disease was invariably lessened. Antitussin has a marked expectorant action, so that the tenacious mucus is easily expectorated. The drug has no toxic effect.

* * *

CONGENITAL TUBERCULOSIS. B. F. Lyle. *Philadelphia Medical Journal,* August 4, 1900.

Lyle reports the case of a colored female, aged thirty-two, who entered the hospital with all the physical signs of an extensive tuberculosis involving both lungs. Two weeks later she gave birth to a child. Labor was normal. The placenta came away naturally and presented no pathological changes. Two days later patient died, and post-mortem revealed extensive consolidation and cavities in both lungs.

The child weighed three and one-half pounds at birth, and apparently had reached full term. Temperature was subnormal during first four weeks; later a slight elevation occurred. The child died at the end of ten weeks.

Post-mortem examination showed the lungs to be filled with myriads of minute caseous tubercular deposits. The spleen, liver and kidney were caseous in areas. Bronchial glands were much enlarged, and contained tubercle bacilli. Intestines and mesenteric glands normal.

The author gives the following reasons for believing it a case of congenital tuberculosis:

(a) The child was removed from all danger of inspiring the germs by being kept away from the wards.

(b) That the disease was not contracted through the milk is shown by the freedom of intestines and mesenteric glands from indications of the disease.

(c) The child showed indications of disease at birth.

(d) The enormous number of deposits in various organs, all in the same stage, indicates a synchronous infection through the blood of the child. The only source of the bacilli was the mother's blood.

* * *

Enteric Fever in Childhood. A. D. Blackader. *Archives of Pediatrics*, September, 1900.

Typhoid fever as met with in children under fifteen years of age presents some characteristics which distinguish it from the disease as met with in the adult.

Of 100 consecutive cases occurring in children, four infants were under the age of two years (one of these being under one year), thirteen between two and five years, forty between five and ten, and forty-three between ten and fifteen years, while in patients over fifteen years of age the disease generally assumes the characteristics met with in the adult. Up to the age of fifteen the symptoms are milder, and the duration, in a great majority of cases, is under three weeks. The more accurate means of diagnosis now at our disposal enable us to recognize not only the more severe cases, but many of the milder ones which were formerly overlooked, and in consequence gave us a false notion as to the infrequency of the disease in infancy and early childhood.

Blackader suggests that all cases of continued fever in the infant unaccompanied by any distinct localization of disease should be carefully investigated for typhoid.

In thirteen of the 100 cases the onset was sudden. Children apparently in good health became ill so rapidly that in a few hours symptoms of disease were well marked. The sudden onset is associated with gastro-intestinal symptoms, attributed at the time to indiscretion of diet. While no distinct chill is mentioned in

any of the 100 cases, chilly sensations occurred in twelve cases. In eighteen cases vomiting is said to have occurred, but not after the first day.

Abdominal pain as an initial symptom was noted in thirty-three cases, while pain on pressure (a rather dubious symptom in young children) is stated to have been present in fifteen cases. Epistaxis occurred in twenty-three cases.

As to the symptoms occurring during the course of the disease, the temperature range presents some peculiarities. The step-like onset was noted in only eight out of the 100 cases, due, as Blackader says, to the fact that the temperature in hospital cases is rarely accurately recorded before the fourth or fifth day of the disease. After the first week the temperature in a large majority of the cases became in a marked degree remittent, a fall of two to four dgrees in the morning generally occurring. At the end of the twenty-first day an evening temperature above 99° was rarely noted. More frequently in the child than in the adult the temperature at this period is noted remaining persistently subnormal for some days. Of the eighty-seven temperature charts which the author compared, in nineteen the temperature reached or exceeded 105°, and the fever persisted for four weeks; in thirty-seven the temperature reached 104°, and the duration in four cases was three weeks; in fifteen cases the duration of four cases was between two and three weeks; in sixteen cases the duration of fever was under two weeks.

The pulse in most cases was only moderately quickened. The spleen was palpable in seventy cases. Rose-spots were noted in fifty-five cases. In eight cases the abdomen became distended; in five of these diarrhea was present. In none did severe hemorrhage occur, although in four cases traces of blood were observed in the stools. A soft systolic murmur over both the base and apex of the heart was noted during the second week in twenty-two cases, caused, Blackader says, by the effect of the toxin on the muscular wall of the heart. The nervous symptoms are not as prominent as in the adult. Mild nocturnal delirium was noted in eighteen cases.

In forty-six cases Widal's reaction was sought for, with following result: Twelve gave a positive reaction on or before the eighth day; thirteen gave the reaction after the eighth, but before the twelfth; twelve after the twelfth, but before the eighteenth day; six after the eighteenth and before the twenty-eighth; in three cases the reaction failed.

These cases were treated by the systematic employment of cold baths. The temperature of the water varied from 85° to 65°.

Blackader stated that, in his opinion, too close adherence to Brand's rule is not desirable in children. It is unnecessary that as low temperature should be employed in the case of a young child as in the case of an adult. Nor is the duration of the bath to be as

long, for the nervous system of a child responds more quickly and energetically than that of an adult.

The only death which occurred in Blackader's series of 100 cases was that of an infant, thirteen months old, which was received into the hospital in a condition of profound depression, and died on the fifth day. The post-mortem examination revealed typhoidal lesions and the presence of typhoid bacilli in the intestines.

* * *

The Use of the Stomach Tube in Infants. O. Heubner. *Die Therapie der Gegenwart*, 1900, No. 1.

The observations of Pfunndler upon the capacity of the stomach of infants demonstrated one of the uses of the stomach tube.

While it is impossible to use the tube in all cases, especially in private practice, Heubner comments on its efficacy in those cases in which it is desirable to ascertain the gastric motility. A definite amount of food is given, and after one-half, two or three hours the stomach is emptied by means of the tube. This gives an idea as to how long the definite amount of food remains in the stomach. By no other method can we obtain as accurate information as to how frequently and in what quantities a certain food is to be given to the child. In this way we also obtain some information as to the function of the intestine, since V. Mering has pointed out that the emptying of the stomach depends on the state of fullness of the small intestine. Strange to say, the stomach shows a certain elective action respecting different foods, frequently showing a tendency to hold back the nitrogenous portion of foods, at least in artificial feeding.

The investigation as to the bacteriology of the stomach contents, a question of great importance, has given no definite results by this method, as might have been expected when we recall the sources of error to be encountered, namely, the bacteria in the mouth.

The chief value of the stomach tube in infants is to remove the stagnant and decomposed stomach contents. When this indication is to be met in gastric disturbances of children its worth and results are as great as in the same procedure for an acute poisoning in adult life.

Emetics, formerly so much used to evacuate the stomach, have largely fallen into disuse. Heubner thinks the tube should invariably replace the emetic, when used to unload the stomach. If the stomach tube is used, and the stomach washed out thoroughly, the danger of the stagnant food carrying infection into the intestine is also lessened. All cases in which the infant is taken suddenly with repeated vomiting, loss of appetite and general depression, pointing to an acute indigestion, should be treated by mechanical evacuation of stomach contents and repeated washing. Two cautions are to be observed—always use lukewarm, normal

salt solution, in order not to injure the gastric epithelium, and beware of too high pressure.

Of course, in those cases of acute dyspepsia associated with intestinal symptoms, colic, green stools, flatulence, etc., the mere cleaning out of the stomach cannot remove the materia peccans, as the intestine has become involved; but even here stomach-washing will be useful.

Correspondence.

THE CENTENARY OF THE ROYAL COLLEGE OF SURGEONS.

A LETTER FROM DR.

THROUGH the kindness of the president, William MacCormac, I have been a delighted participant in the festivities of this celebration, an account of which will, I hope, be acceptable to the readers of the MARYLAND MEDICAL JOURNAL.

First, a word about the college. From time immemorial there had been in London a guild of surgeons, which, in addition to other duties, had control of the barber-surgeons, the group of mechanicals who cut hair, bled and cupped. The two guilds were united in 1540 under the title of the "Masters and Governors of the Mystery and Commonalty of the Barbers of London." For 200 years this remarkable union persisted, to the great injury of the surgeons, who, in 1745, obtained a separate incorporation. In 1796, owing to certain irregularities, the Company of Surgeons forfeited their charter, and it was not until March, 1800, that the Crown granted a new one. The centenary of this incorporation was the occasion of the celebration, of which I will give you a sort of diary.

On Wednesday, July 25, the morning was devoted to demonstrations in the museum of the Royal College of Surgeons and in the conjoint laboratory of the Royal College of Surgeons and the Royal College of Physicians. The crowning glory of the college is the Hunterian Museum, a worthy monument to its great founder, whose original specimens formed the nucleus of the collection, now the most extensive and best arranged in the world. Professor Steward and Dr. Shattock took groups of visitors about the rooms and demonstrated the more interesting specimens, showing particularly those which illustrated the technical skill and the brilliant experimental genius of the great Hunter. I cannot here dwell upon this feature of the celebration, but I would advise physicians visiting London not to let twenty-four hours pass after their arrival without paying homage at the shrine of John Hunter in Lincoln's-Inn-Fields. The museum is open at 10 A. M. daily, except on Friday and Saturday, when women students only are admitted.

Dr. Brodie, the director of the conjoint laboratory, gave lectures

and demonstrations on the special work on which he is engaged, viz., a study of the properties of the antitoxic serum. He is a clear and attractive lecturer, and it was pleasant to see how much good work he has in progress. He demonstrated an ideal kymograph, one of the most perfect and beautiful pieces of mechanism I have ever seen.

In the evening the president and the council gave a conversazione in the museum and library, the spacious rooms of which are especially well adapted to such a purpose.

On Thursday the conferring of the honorary fellowship upon a selected group of distinguished surgeons drew a most brilliant gathering to Burlington House. The president was supported on either side by the Premier (Lord Salisbury) and the Earl of Rosebery, while the council and the senior fellows of the college occupied seats on the platform. In the arena, arranged in two rows, sat the surgeons selected for the honorary fellowship. Like a sensible man, the president cut down his address within half an hour. He took up the history of the growth of the college, and gave interesting biographical sketches of the past presidents.

Lords Salisbury and Rosebery were first made honorary fellows, and then the visitors were called out in alphabetical order. From each country three or four of the most eminent surgeons had been selected for the honor—in all thirty-four. The variety of the academic costumes added greatly to the brilliancy of the affair. The Spanish surgeons were resplendent in a remarkable garb—a purple cassock-like garment surmounted by a cape of brillant yellow. The French surgeons, Lannelongue, Ollier and Pozzi, while less adorned, were conspicuous figures. Von Bergmann, ablaze with orders, Kuestner, Koenig and Kocher were the German surgeons. From the United States representative men had been selected from four teaching centers—Warren from Boston, Wier from New York, Keen from Philadelphia, and Halsted from Baltimore. Two Irish surgeons, Bennett and Ball, and MacEwen from Glasgow also received the diploma. Escorted to the president by Mr. Langdon and Mr. Henry Morris, the vice-presidents, the recipients were greeted with rounds of applause. Two men had especially warm welcomes—Von Bergmann (whom many, I suppose, felt had been hardly used in the case of the late Emperor Frederick), and MacEwen, the foremost active surgeon of the Empire. In spite of the heat it was a most delightful ceremony, conducted with much grace and decorum.

At 8 o'clock a dinner was given by the college in the hall of Lincoln's Inn, one of the law societies. It was the best-ordered large dinner I have ever attended. We sat down about 8.15, and rose about 11.15. A more distinguished company has perhaps never been gathered to do honor to the profession. To the right of Sir William MacCormac sat the Prince of Wales, the Portuguese Minister, the Marquis of Salisbury, the Duke of Northumberland, Lord Strathcona, Lord Kelvin and a group of honorary fellows. To his left sat the Duke of Cambridge, Earl Rosebery, the Lord

Chancellor, Lord Lister, the Lord Mayor, and other honorary fellows. The members of the council occupied seats at the ends of the eight long tables. Among many excellent features of a most exceptional dinner may be mentioned the shortness of the speeches and the softness of the music. The Prince of Wales spoke with great clearness and directness, and was well heard by everyone. He acknowledged most gratefully and gracefully the debt he owed to the president on the occasion of the serious accident to his knee. The only other speech of note was by Lord Rosebery, who, witnessing the harmony existing in the medical profession throughout the world, expressed the hope that perhaps through science might yet be realized that peace on earth to effect which all other means had failed. There were several remarkable bits of plate on the table—one the silver grace cup presented to the Barbers' Company by King Henry VIII in 1540 in commemoration of the union of the barbers with the surgeons. Pepys mentions this (as was stated) in his Diary "among other observables at Chirurgeons' Hall, we drunk the King's health out of a gilt cup given by King Henry VIII to the Company, with bells hanging at it, which every man is to ring by shaking after he has drunk up the whole cup."

On Friday morning the librarian of the college had on view the chief literary treasures of the library. A collection of the portraits of the older surgeons and of the past presidents had been arranged. At one end of the library hung pictures of the great brothers, John and William Hunter. With the well-known portrait of the former by Reynolds you are all familiar. Seated in a chair is a man of mature years and fine presence, who is looking up in an abstracted manner. This portrait is in striking contrast with that of a young man, thirty perhaps, with a strange face, uncouth, rough-looking, not intellectual, with blear eyes and a bright red head. The dress matches the face, careless and unkempt, and a rough yellow jacket, one lappet of which is out, the other tucked in. Altogether it is a most unpleasant picture of the great man, but no doubt true to life at the period when taken, for John Hunter was a bit of Scotch granite, and he had not the prolonged and careful polishing of his brother William, whose portrait shows a face of great refinement and intellectual strength. Home's portrait of John Hunter, the one referred to, should be reproduced, as it emphasizes the truth of Shakespeare's dictum "There's no art to read the mind's complexion in the face," a dictum which we teachers are too apt to forget.

The ceremonies concluded with a reception by the Lord-Mayor at the Mansion House.

Sir William MacCormac may be congratulated on the brilliant way in which the centenary was celebrated. We all expected much from a man whose executive abilities are well known and have been so well tried. In all of its details the celebration could not have been more satisfactory, and perhaps no other member of the profession in England could have commanded the social and intellectual support which helps so much to make these occasions memorable. W. O.

Book Reviews.

THOMPSON'S PRACTICAL MEDICINE: A Text-Book of Practical Medicine. By William Gilman Thompson, M.D., Professor of Medicine in Cornell University Medical College, New York City; Physician to the Presbyterian and Bellevue Hospitals, New York. In one magnificent octavo volume of 1010 pages, with 79 engravings. Cloth, $5 net; leather, $6 net; half morocco, $6.50 net. Philadelphia and New York: Lea Bros. & Co.

This book is, as its name implies, eminently practical. Into its 1000 pages is crowded, as the author states, "a comprehensive review of the present status of medical practice." In glancing over the work one is struck, in the first place, by the mass of material used in its preparation; in the second place, by the elimination of all theories, except those based upon sound objective reasoning, supported by the weight of many facts and observations, thus retaining the practical character of the work; and, in the third place, by the comparatively great amount of space devoted to therapeutics, a subject often somewhat neglected in modern medical treatise, pathological anatomy and diagnosis having so far outstripped therapeutics that they rather seem to shun its company. No book of this nature is used by the general practitioner except as a reference book, but as such it will undoubtedly prove of value, while to the student it will furnish a most useful text-book of medicine. The incorporation of so much of the well-known author's own medical experiences and observations into the book renders it even more valuable. B.

FORTY YEARS IN THE MEDICAL PROFESSION, 1858-1898. By John Janvier Black, M.D. Philadelphia: J. B. Lippincott Co. 1900.

The author, in his preface, speaks of his book as one for a leisure hour, and we are convinced that time will be pleasantly beguiled in his company. Dr. Black dates his entrance into the profession June 5, 1858, when, a lad fresh from Princeton, he sailed from New York for San Francisco via Aspinwall on a side-wheel wooden steamer. All steam vessels were high rollers in those days, but the particular spice of the trip was derived from yellow fever at Aspinwall, again at Acapulco, and smallpox on board ship.

At San Francisco his real entry upon the study of medicine was made in the United States Marine Hospital. It is very interesting to read a first-hand account of the scurvy which at that time still prevailed among French and German sailors.

Hardly a question that comes to the general practitioner but is touched upon in this little book, and there is here and there a shrewd commentary upon the curious tricks which the whirligig of time has played under this genial doctor's observation.

FRACTURES. By Carl Beck, M.D., Visiting Surgeon to St. Mark's Hospital and to the New York German Poliklinic; formerly Professor of Surgery, New York School of Clinical Medicine, etc. With an Appendix on the Practical Use of the Röntgen Rays. One hundred and seventy-eight illustrations. Price $3.50. Philadelphia: W. B. Saunders & Co. 1900.

The dedication of this book is "To Wilhelm Conrad Röntgen, without whose discovery much of this book could not have been written." Most excellent treatises on fractures by American authors have appeared previously, but this is the first systematic work on this subject in which the *x*-ray demonstration of the injury is made the basis of the treatise. We wish to express our hearty commendation of this book. It is certainly, at this time, one of the most useful treatises on fractures in the English language, and, as far as we know, in any language, because it is based on the actual skiographic representation of the injuries as seen in the living individual. Dr. Beck insists on the constant use of the Röntgen rays, both as a means of diagnosis primarily and as a control in the course of the treatment. Unfortunately, the application of this method is difficult in private practice at the home of the patient. The typographical execution of the book is good, and the illustrations excellent. R. W.

DUANE'S MEDICAL DICTIONARY. New (third) edition. A Dictionary of Medicine and the Allied Sciences. Comprising the Pronunciation, Derivation and Full Explanation of Medical, Pharmaceutical, Dental and Veterinary Terms, together with much Collateral and Descriptive Matter, Numerous Tables, etc. By Alexander Duane, M.D., Assistant Surgeon to the New York Ophthalmic and Aural Institute; Reviser of Medical Terms for Webster's International Dictionary. In one large square octavo volume of 656 pages, with 8 full-page colored plates. Cloth, $3 net; full flexible leather, $4 net. Philadelphia and New York: Lea Bros. & Co.

This is the third edition, carefully revised, of a very handy and complete dictionary. Its convenient size, which is due to the elimination of obsolete and useless words, makes it a very useful desk book.

ESSENTIALS OF PHYSICAL DIAGNOSIS OF THE THORAX. By Arthur M. Corwin, M.D. Third edition, revised and enlarged. Philadelphia: W. B. Saunders. 1899.

This is a small students' handbook of 200 pages, with a good index. It has a sufficient number of illustrations, and is a good guide in the study of physical diagnosis of the thorax.

A HAND-BOOK FOR NURSES. By J. K. Watson, M.D. American edition, under the supervision of A. G. Stevens, A.M., M.D. Philadelphia: W. B. Saunders. 1900.

A good book on the subject, containing somewhat over 400 pages, fairly illustrated and well indexed.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth; pp. 408, with fourteen engravings. Philadelphia and New York: Lea Bros. & Co. Vol. III, September, 1900. Issued quarterly. Price $10 per year.

This volume seems to us on the whole inferior to the two preceding numbers of the same series. This judgment may be in part the result of disappointment in reading Ewart's article, which makes up over one-third of the book. The multitude of subjects considered in this article could not be well treated in so small a space, 135 pages. The original sources of some good matter have not been examined, and the names of well-known American authors are subjected to irritating variations. Better editing might have saved the author some reproach on this latter score.

There is a good and practical article by Stelwaqon on Diseases of the Skin, and one by Spiller on Neurology. In Spiller's article anesthesia by cocainization of the cord is dismissed in eighteen lines, with but one reference, and is condemned.

The last article is by Richard C. Morris on Obstetrics.

OGDEN: CLINICAL EXAMINATION OF THE URINE AND URINARY DIAGNOSIS. Philadelphia: W. B. Saunders & Co. 1900.

This book is an extremely well-written and carefully-prepared treatise on urinary examination and urinary diagnosis. The author of the book being a chemist as well as a physician, the chemical side of the work is not slurred over, as is frequently the case in many books upon this subject, but receives its proper share of attention. For this reason the book is of much value, and will undoubtedly prove of great use to the research-worker along these lines, as well as to the general clinician who wishes a book in which he will find not so much a careful consideration of the urine from the point of view of its microscopical and chemical peculiarities as a definite description of its changes in the diseases with which he is likely to come in contact.

Ogden's book is admirably suited to fill this twofold want. In the first part the normal and pathological urine is carefully considered chemically and microscopically, while the second part is devoted to those diseases which are associated with pathological changes in the urine, with a careful description of those changes.

The book is well, though not profusely, illustrated, and excellently printed. B.

MARYLAND MEDICAL JOURNAL.

JOHN S FULTON, M.D., *Editor.*

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BALTIMORE, OCTOBER, 1900.

A NEW SCHOOL IN BALTIMORE.

THROUGH the courtesy of a subscriber we have received the first announcement of "Christ Institution Medico. Chirurgical and Theological College of Baltimore, Maryland. Universal."

The generation of the school is set forth in the announcement as follows:

"HISTORICAL.

"The Medico-Chiourgical and Theological College of Christs Institution had its origin May 22nd 1887 as a society of permanent association of physicians and on May 15th, 1890 when we secured our certificate of incorporation as an Religious and Divine Healing Association, and with many oppositions and besetments we have traveled this far by the aid and assistance of our Lord and Saviour, Jesus Christ. Preaching the Gospel to sin sick souls. Healing those who were afflicted with various diseases, in the name of our Lord. As the Faculty so deemed it necessary, in the A. D., 1900, to apply for a charter, being citizens of the United States and a majority of whom are citizens of the state of Maryland, we do hereby certify that we do, under and by virtue of the General Laws of the State authorizing the formation of corporations, hereby form a corporation under the name of 'The Medical and Surgical School of Christ Institution, of Baltimore City,' May 14th, 1900. The ability and privelege has been granted for the creation and maintenance of a Medical, Surgical and General Educational College and therein to teach the science and art of medicine and surgery and the treatment of diseases of all kinds, to confer degrees upon all persons who may become proficient under the tuition of said corporation and who may be morally worthy to practice the medical and surgical profession or any special branch of the healing art, and generally for all the objects and purposes for which medical and surgical colleges are formed and designed. The faculty consists of men of infused energy and hence by the help of the Almighty and patronage of the general public development is sure."

In the theological department a course and a degree are offered for $5. The president is J. E. Smith, A.M., M.B., B.D., and his associates are three reverends.

In the medical department the charge is $50 a year, and the course is four years. Except in the "Historical," already quoted, nothing is said about a degree in medicine.

The professor of obstetrics is G. W. Kennard, A.M., M.D., D.D., Ph.G., a famous man, who teaches "abdominal palpitation" in the "Maturity Hospital." Dr. Kennard is also professor of surgery, and his outline of the course in that branch has been freely plagiarized by other teaching surgeons in Baltimore.

Professor Smith of the theological department are also the professors of Hygiene, Pathology, and Bacteriology. His course "scopes with the evolution of the students knowledge."

The professors of Physiology offer the use of his laboratories for original investigation.

The professors of anatomy, chemistry, and Linguistal are John F. D. Brown, A.B., M.D., B.D., Ph.D. We are not informed about the course in anatomy, but the course in chemistry promises the student "a combination of complete laboratory system," and by "freshening and clarifying his knowledge, to aid him in obtaining his state license to practice."

The details of the course in Linguistal are omitted, but unchristened Bernstein is Ast Demn'st of German.

From the list of recommended text-books the following "scope" particularly well:

Anatomy.—Holden's Ostrology and Towel's Notes.

Physiology.—Yed Martin's Human Body.

Pathology.—Seim's Principal.

Diseases of Woman.—Gyn, Garrigue's.

Skin, Genito, Urinary and Verneral.—McReck Skin, and McReck Van Diseases.

Our correspondent asks, "Must we have this school in Maryland?" Yes, we positively must have it. Why should one go to Boston or Chicago for that sort of thing?

THE FIGHTING GAME.

A STIFF breeze of editorial invective accompanies every great event in fistics, but a 60-mile gale will not whirl the record of hooks, jabs and jolts into the street early enough for the crowd. The newspapers must employ the megaphone and stereopticon in order not to be distanced by the theater, café and club. The steady-going citizen sleeps with the voice of the announcer in his ears. The morning paper opens at the right page, and he drinks cold coffee without growling, so marking a high tide of domestic peace. On the downtown car he buys another paper, flashes the shameless pictures into view, and shares the page with a pair of frank or furtive eyes at either shoulder.

Nor is evidence lacking in more enduring literature that the love of a fight is deeply ingrained in human nature at all levels. If any man has forgotten the memorable battle of Tom Brown at Rugby it is a safe wager that he remembers nothing of that wholesomest of juveniles. One of our best actors says that the most congenial work in a long career was to play Orlando and wrestle with William Muldoon. The novelists, great and little, stern and gentle, have all treated the argument of the fist *con amore*, and the tale never seems brutish unless weapons are used.

Learoyd's sweet story of Greenhow Hill, punctuated by Otheris monkey-

ing with his wind-gauge and range-sights, and at the end potting a Hindu deserter at 700 yards, makes the gorge rise. But Learoyd going out to fight Dearsley after the custom of white men, "with his hands, making no noise, and never at all pulling the hair of Dearsley Sahib," is full of a virtue beyond the gainsay of the most sophisticated moralist.

Such virtue is rude, to be sure, but fundamental, in the best sense manly, and among manly virtues commands man's liveliest admiration. If the prize-fight, with its demoralizing accessories, should pass away, the spectacle might not be regretted. Lesser sports may be, perhaps are, equally corrupted, but the exhibition and its accessories are the work of those who are neither players nor witnesses. The contest itself is not brutal to the men of today, and will not seem so to the thousandth generation of their children. Three thousand generations have brought us from the cestus to four-ounce gloves, and the next 3000 will make no greater advance. We have been thus far led, not by humane motive, but by sober economy of human strength.

Among boys the ordeal of bare knuckles is the *ultima ratio regum*, inconclusive as to the matter in dispute, but capable of imparting a sort of wisdom untaught in the schools, yet very helpful on the way to hale manhood. Whether the fight is entitled to a place among the sports of men some special student should tell us. By acclamation the "ayes" have it.

I, the scribe, notwithstanding honorable inclinations, have never seen a pugilistic contest, but I have spilled soup over feminine drapery, have been plucked at examination, have collided in the dark with inanimate objects, and have been knocked out. From this gamut of pain, whether it is to be given or taken, I choose the knockout as my sport.

ANTHRAX CONVEYED BY AN INSECT.

Dr. George A. Williamson in *British Medical Journal* (September 1) gives some observations in which he was able to demonstrate that the Phalangi of Cyprus had communicated anthrax through its sting.

Locally this insect has long been believed to be dangerous. Many deaths are on record, and permanent deformities are to be seen, attributed to the Phalangi sting. A fatal disease of sheep, known in Cyprus as Phalangari, was recognized by Williamson as anthrax. In two instances Williamson had the opportunity to examine Phalangi bites; once within three days, and once eight days after Phalangi bites. Anthrax bacilli were abundant in the discharge in both cases. Each of the patients had lost sheep from Phalangari.

In three other cases of Phalangi sting, observed by Williamson, the results were trifling. One of these was a woman badly frightened after having been stung on the hand by a Phalangi. After examining the exudate, Williamson assured her that she had nothing to fear, basing his prognosis on failure to find bacilli. She was quite well in a day or two.

The Phalangi has a decided preference for foul meat, and Williamson believes can carry the anthrax bacillus on its body as well as upon its sting.

Medical Items.

New York will have a special laboratory for the study of plague.

Dr. John R. Winslow has removed his office from 924 McCulloh street to 114 West Franklin.

Dr. Robert Hoffman has removed his office to 1325 Park avenue, opposite Brown Memorial Church.

Dr. Swan M. Burnett of Washington, who has been critically ill with typhoid fever, is now convalescent.

The total number of bathers at the public baths in Boston for the months of June, July and August was 1,950,000.

Dr. E. Oliver Belt has been elected president of the Society of Ophthalmologists and Otologists of Washington.

A Jewish child, fifteen days old, is said to have died in Philadelphia from hemorrhage after the rite of circumcision.

Water famines have prevailed recently in several Maryland towns. Lonaconing has perhaps been the chief sufferer.

A telegram from Surgeon-General Sternberg announces the death of Dr. Jesse W. Lazear, of yellow fever, at Havana, on September 26.

Dr. I. N. Love of the St. Louis *Medical Mirror* will shortly remove to New York, where he is to become professor of medicine at the Post-Graduate School.

Dr. J. Riddle Goffe has given up the editorship of *Medical News* to Dr. Smith Ely Jelliffe, who has been one of the associate editors for some time past.

The plague in Glasgow is said to have originated at the wake of a woman who died of pneumonia. Pneumonia is one of the effective disguises of bubonic plague.

The meeting of the Southern Surgical and Gynecological Association will be held in Atlanta November 13, 14 and 15, under the presidency of Dr. A. M. Curtledge.

The experimental filter was put into operation at Spring Garden Pumping Station, Philadelphia, on September 6 in the presence of the mayor and other city officials.

An epidemic of conjunctivitis in New York is said to owe its spread to the public baths along the river front. In one day at the Eye and Ear Infirmary 196 cases were treated.

The Galveston horror has furnished a substantial argument for cremation, and has no doubt removed a great deal of popular prejudice against this method of disposing of dead bodies.

An epidemic of typhoid fever at Milwaukee has been traced to the route of a milk dealer, who had a case of typhoid fever in his family. About all the cases, forty in number, were on his route.

An epidemic of rabies among horses and cattle near Decatur, Ill., has led Dr. S. H. Swain to the belief that the disease cannot be checked except by killing all the dogs in the two townships.

Dr. John B. Murphy has been elected professor of surgery in the Northwestern Medical School, University of Chicago. Dr. Archibald Church has been appointed professor of nervous and mental diseases in the same school.

The State Board of Health is making an unusually active campaign against diseased animals and unsound meat at Calverton Stock-Yards and Union Abattoir. The efforts of the Board in this direction are said to be somewhat intermittent for lack of inspectors.

Dr. Phicque proposed at the Congress of Hygiene in Paris to establish an additional tax of a penny upon alcohol for the benefit of the tuberculous. The tax upon alcohol is fully justifiable, Dr. Phicque thinks, upon the ground that alcoholism is the principal cause of consumption.

A man in St. Paul, Minn., is said to have been burnt to death by the *x*-rays. He had radiographs made of injuries sustained in a street-car accident, intending to offer them as evidence in a suit for damages. The physician who made the pictures denies that the patient was fatally burned.

The engagement is announced of Dr. Edward Morton Schaeffer to Miss Maude Maximiliana Villani White, daughter of Rev. T. Archibald S. White and Mrs. Mathilde White, nee Baronne de Seutter-Loetzen. This news comes from Baden-Baden, where Dr. Schaeffer has been for a year.

The J. B. Lippincott Company will shortly begin the construction of a fine building to replace their old home recently burned. The new site is on Washington Square, on land once occupied by the old Walnut Street Prison, in which American prisoners were confined during the occupation of Philadelphia by the British.

Dr. Jacob M. Da Costa died suddenly of heart disease on September 11 at his country home, near Philadelphia. Dr. Da Costa was born in 1833, graduated at Jefferson Medical College in 1852, and became professor of theory and practice of medicine at Jefferson in 1872. His best-known work was the classical work on "Medical Diagnosis."

Dr. J. C. Kempter was recently granted a license to practice in the State of New Jersey, the examining board of that State having granted license upon the examination by the Maryland State Licensing Board. The New Jersey board has thus discretion in the case of an applicant who presents proof of the academic and medical education required by the laws of New Jersey, together with the license issued by another State board after an examination of the same grade and kind as that required in New Jersey.

Dr. Hunter Holmes McGuire died on September 19 at Richmond, after an illness of about six months. Dr. McGuire was born in Winchester in 1835, and graduated in medicine at the Medical College of Virginia in 1858. During the war he was medical director in Stonewall Jackson's army. At the close of that struggle he settled in Richmond, and speedily became one of the foremost surgeons in the South. He was, at the time of his death, president of the University College of Medicine in Richmond. Dr. McGuire was an ex-president of the American Medical Association.

Editor Maryland Medical Journal:

In a recent advertisement my name appears as indorsing the statement that a certain spring water was free from bacteria. Will you kindly insert the following signed statement in explanation of this occurrence?

Very truly, Wm. Royal Stokes.

Baltimore, Md., September 21, 1900.

Chemical and bacteriological analysis proves Chattolanee Water to be pure, but the name of Dr. W. R. Stokes, through some misunderstanding, was placed on some recent advertising matter without his authority, which error I will gladly correct.

John M. Stork, Proprietor.

There died recently at Olney, Montgomery county, a layman who enjoyed in his lifetime the especial respect and admiration of medical men. Henry C. Hallowell was one of the organizers of the Olney District Board of Health, and for sixteen years its president. This board of health is a voluntary sanitary association, incorporated by an act of the legislature of earlier date than the local board of health bill. In the history of sanitation in Maryland this association occupies a conspicuous position. Its permanence and the steady growth of its influence are the more remarkable when it is considered that its jurisdiction covers a rural district, including no town or incorporated village.

When Governor Goebel was shot at Frankfort Ky., Dr. McCormack, hearing of the occurrence, was one of the first persons to go to the assistance of the injured man. Dr. McCormack had long been a close friend of Goebel's, and, realizing at once that the popular sentiment resulting from the assassination would move the legislature to decide the contest by declaring Goebel governor, McCormack devoted himself to the task of keeping the man alive, though the wound was clearly mortal. Dr. McCormack refused to render a bill for his services on the ground of personal friendship. The brother of the dead governor, Arthur Goebel, has filed a claim of $10,000 against the estate for Dr. McCormack. If any of our readers remember at Atlantic City, in June, the tall fellow with smooth face, who made very proper and pungent comments upon the foolish paper on small-pox by a man from Tennessee, that man was McCormack.

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THE WHITE DEATH, AND THE SANATORIUM, OR SCHOOL FOR CONSUMPTIVES.

PREVENTION BETTER THAN CURE: THROUGH SANITATION AND PRACTICAL TEACHING OF HYGIENE TO THE YOUNG.

By Edward M. Schaeffer, M.D.,
of Baltimore,
Member of the American Association for the Advancement of Physical Education.

A RECENT case of homicidal and suicidal despair in Baltimore on the part of a father confronted with poverty, the lingering death of consumption, a medical certificate of physical helplessness and need of hospital care, and the "waiting list" of a small, overcrowded sanatorium for such cases, emphasize the necessity of a more general agitation among the benevolent and influential classes of our city and State which may lead to some adequate provision for the relief of these numerous unfortunates. During my year's vacation in the Black Forest region of Germany an opportunity has presented itself of visiting a model private institution of this kind and of learning the views held by the general profession as to their merits and the range of their therapeutic and municipal usefulness.

Inasmuch as America is extending its interest in these special hospitals, and the question of their establishment has been presented not infrequently in our Maryland Public Health Association meetings, it has seemed timely to report some of the impressions and ideas thus received.

THE BLACK FOREST.

Of all the wooded districts of Germany, none has such beautiful and varied landscapes as the pine-covered tract, some fifty by one hundred miles in extent, bordered by the Rhine on the west and south, constituting the west portion of the Duchy of Baden. Mountains reach in some places a height of 4900 feet; fertile valleys, dotted with picturesque villages, everywhere abound; mineral springs are numerous, and perpetual verdure seems to reign. Naturally, sanitariums are frequent, and "air-cure" signs as thick

as telegraph poles. I propose to give a very brief account of two localities where consumptives are treated—St. Blasieu and Badenweiler. These places are also favorite resorts for sufferers from functional or chronic nervous disorders on account of the fine air, sheltered situation, equable temperature, beautiful walks, etc.

At Badenweiler, where patients reside in special private families, the season lasts from mid-March to the end of October. At St. Blasieu, where there is a large and elegant private hospital, patients remain throughout the year.

Badenweiler (1450 feet), a village of 600 inhabitants, is reached via Freiburg, a delightful city of 54,000 population, one of the pleasantest towns in Germany. Müllheim is the station for the local train. St. Blasieu (2530 feet), 1400 inhabitants, requires a trip of four hours by diligence from Titisee (via Freiburg) or Albbruck (via Basle). The intervening country of both routes is most beautiful.

I found at the Sanatorium St. Blasieu, conducted by Drs. Albert Sander and Ernst Maier, an admirable building, complete in every detail for the comfort, hygienic welfare and professional care of its guests, quite as attractive as our best summer hotels. The treatment is chiefly hygienic and dietetic, and it was hard to realize that the merry and well-nourished company of sixty patients who assembled at the dinner table were actually consumptives. An American lady, who had accompanied her husband here after sojourns in Colorado and North Carolina institutions, spoke to me of the rapidity with which new cases lost their cachetic appearance and took on flesh. On learning of my birthplace, Dr. Sander acknowledged his indebtedness to Dr. Osler for a patient from Baltimore.

A thorough inspection of the institution and its methods impressed me favorably with the rational and skilful management of the cases. There was an absence of extreme views or heroic therapeutic measures, and the unavoidable disadvantages of treating a number of such patients under the same roof seemed to be reduced to a minimum. Considerable snow falls during the winter months, but rest in the open air and sunshine is abundantly provided for at all seasons. Entertainment can be had in the building or the adjacent town.

BADENWEILER.

Badenweiler has thermal springs (77° to 80° F.), whose waters are conducted into a large marble basin (the bathhouse is 108 feet long by 69 feet broad), arranged somewhat in ancient Roman style, lighted from above by stained-glass windows. The real Roman baths at this place, probably constructed in the second century, are said to be among the finest remains of the kind in existence.

On entering the waiting office of the leading physician in Badenweiler I was rather surprised and interested to find a placard, in English, on the wall, reading, "Prevention is better than cure."

As the physician's popularity and success do not seem to be affected by this unusual greeting and blunt admission, I may add, that his practice is entirely consistent with the same. Patients are promptly informed that their full co-operation in a carefully-planned daily hygienic régime is the principal element in their recovery, and if unwilling to assent (in abstinence from alcohol, for example), consumptives are requested to go elsewhere, that their faith in the witchcraft of drugging may not be so rudely shattered. The cure necessitates the education and enlightenment of the patient, in all chronic cases, and especially in so hopeless a condition as inherited phthisis.

I have been at some pains to translate for those who do not read the foreign journals the views of a representative and successful German practitioner of large experience in tuberculosis, who is, at the same time, an original investigator and trained bacteriologist.

The points touched upon in his address (which was published in the *Münchener medicinische Wochenschrift*, June 3 and 20, 1899, and is reproduced here in condensed form with the author's consent and approval) cover most of the ground which is of special interest to those laboring in behalf of the erection of sanatoriums and the lessening of the ravages of the white plague.

One must not expect too much of such institutions. The view here advanced is that they are chiefly "schools" and homes of comfort. The percentage of real cures is exceedingly small, even under the best conditions.

* * *

THE TREATMENT OF PULMONARY TUBERCULOSIS. By Dr. Albert Fraenkel of Badenweiler, Black Forest. Abstract of an Address before the Heidelberg Medical Society.

"Without tubercle bacilli no tuberculosis; no tuberculosis without personal predisposition."

That is, the tubercle bacilli are the immediate cause of tuberculosis, but not the only one. The bacilli may gain access to the air passages (it is not yet shown that this always, or even mostly, occurs by way of the respiration) and there remain without causing disease. This immunity seems to be inherited. We do not know of an acquired immunity, for recovery from the severest types of tubercular infection does not protect from relapses; neither lung infection from lupus, nor tuberculosis of the joints from pulmonary attacks, etc. Moreover, the inherited immunity from tuberculosis does not appear to be absolute. We now recognize how the resistance-power of the organism is materially reduced by single acute and chronic diseases, such, for example, as whooping cough, measles, influenza, diabetes, syphilis, etc.

MARRIAGE OF CONSUMPTIVES.

A judgment of this kind cannot be made on purely scientific grounds, but must consider the age, character, occupation, etc.,

of those participating. The following points seem of importance for the individuals themselves and for posterity:

Before contracting marriage it is especially desirable that there shall have been a quiescence of the disease for months, or, better still, for years, because therein lies a certain guarantee for the future. In every case, furthermore, a distinction is to be made between cases of heredity and those whose disposition to the disease is acquired. The former are less fit for marriage than the latter, even though their attack has been milder, for this serious debit darkens the prognosis and involves a greater danger of transmitting the susceptibility to their offspring.

Tuberculosis in the wife is much the graver, on account of the demands of pregnancy, parturition and the puerperium, and because the mother has a much larger share in the building of the child than the father has. It is readily understood that consumptive mothers, for the most part, bear weakly children, while healthy mothers, as a rule, present healthy children to their tuberculous husbands.

HOW TO ATTACK TUBERCULOSIS.

The family doctor should always emphasize the importance of a special training for the children of consumptive parents, viz., rational feeding, if possible a healthy wet-nurse, plenty of milk, and *no alcohol* during the years of pubescence; above all, a diet rich in fats. One scarcely ever hears of a case where no dietetic rules have been laid down in which the phthisical patient, from childhood up, has not carefully removed the fat from meat, and put no special value on the use of butter.

The mental development of such children should not be forced, and during school time should be allowed for gymnastics, sport of every kind, with plenty of fresh air, while the bodily vigor is to be hardened by contact with air and water.

The laity should be impressed with the need of proper school hygiene and sensible daily living, for in the rational physical training of the young—those affected as well as those not affected—consists one of the strongest agencies that we have in the struggle against tuberculosis.

Dr. Fraenkel sees in the reduced mortality statistics of Prussia (59,000 less deaths from pulmonary tuberculosis in the years 1890-1896) not so much the result of care in rendering the expectoration innocuous as the outcome of social legislation, and the improvement of the dwellings and conditions of life among the common people. Flügge sees the chief danger of infection, not in the *dried* sputa, but in moist particles, which, in the form of fine drops, may be carried great distances by light currents of air; hence coughing, speaking and sneezing are modes of contagion. In the light of these later bacteriological investigations it is a question whether the return to sand and sawdust for the reception of the sputa is not to be preferred to the use of water, whereby evaporation is interfered with.

Sanitarians should, however, wait for hypotheses to become

established facts before unnecessarily adding to the anxieties of the tuberculous. Kitasato's experiments showed that the bacilli in sputa are generally of low vitality, often not living. It is enough to urge cleanliness on our phthisical patients, and along with them, on all subjects with coughs, vigorously forbid spitting on the ground, and accustom subjects to the use of house and pocket spittoons. It is much more difficult to break up the habit of swallowing the sputa, especially among women. Where, by the way, in a large number of cases of severe pulmonary involvement there are no intestinal ulcers, concern as to the virulence of the expectorated tubercle bacilli may be somewhat lessened.

EARLY DIAGNOSIS.

Modern therapy is not directed so much to the destruction of the bacillus as to influencing the vital energy of the cell by increasing metabolism and aiding the resistant-power of the organism to the results of infection, and by localizing the poisonous process in the part of the lung invaded. Early diagnosis of tuberculosis is of the highest importance if we are to raise the percentage of relative and absolute cures. My experience is that the doctor should in all cases be able to make this early diagnosis independently of the bacteriological test. Almost always over the infected lung apices percussion and palpation will elicit changes, and a crackling, respiratory sound be heard, and if subfebrile temperature coexists the diagnosis is made. In puzzling cases I have cleared up the situation by a trial injection of old tuberculin. If to 1 mg. of the original fluid there is a response of 38.5° C. and over, to 2-3 mg. of 39° C. and over, one cannot go astray in recognizing a tuberculous colony. A negative result after two injections has a definite value, and argues against the presence of tubercle.

It is strange that in the face of the increasing value in veterinary medicine of this use of tuberculin so little application of the same is made to man. To be sure, one cannot well apply it to cases which are moving about, for it requires careful use of the thermometer and several professional visits on the day of injection. The unfortunate belief in the incurability of tuberculosis would never have arisen if these slight invasions of the lung apices had been earlier diagnosed. In a clinical sense we speak only of relative cures, which mean, above all, the disappearance of cough and expectoration for years, a good state of nutrition, and full capacity for work in one's accustomed calling, without unusual precautions. [Case cited of patient who had initial hemoptysis and subfebrile temperature in 1891; right apex involved; tubercle bacilli in sputum. In 1893, whilst taking an "air cure," had severe relapse, with many dangerous hemorrhages and high fever. Recovery from this attack was so complete that for years cough and expectoration have been entirely absent. Patient has married, insured his life, and established a business which requires him to travel three-fourths of the year. This case is not a rarity, but a type of

the *pure* lung infections, not associated with other bacteria, and especially not with the streptococcus pyogenes. Mixed infections, with their catarrhal desquamative processes and necrosis, often stand still for years, but treatment has very little influence over them.]

MEDICATION—TINCTURE OF CREOSOTE.

Rivers of creosote have been used in phthisis and the numerous derivatives vaunted by enterprising druggists. Experiments on dogs made in the Heidelberg laboratory show that the necessary saturation of the blood for bactericidal effect (1:4000) causes evidences of intoxication. Besides, it is idle to discuss whether the isolated colonies of bacteria are reached through the circulation. I have never seen any real specific effect, but have observed serious relapses under the use of large doses of creosote continued for years. It is of value as a stomachic and to disguise the taste of cod-liver oil or hasten its absorption. The derivatives, ichthyol and orexin, come well recommended.

TREATMENT OF HEMORRHAGE.

No matter what the origin or source of the hemorrhage the text-books generally recommend ergot by the mouth or ergotin hypodermically, with the sole and certain result of a disturbance of digestion or a possible abscess. As to any direct or indirect influence on the hemorrhagic site, there is nothing to be said. Pharmacological experiments have long since taught us that the physiological effect of ergotin on the lung consists merely in contracting the blood-vessels, and where this occurs there is also danger of increased blood pressure and gangrene. Because ergot checks atonic bleeding from the uterus through its oxytoxic properties, should it also be applicable to pulmonary hemorrhage? For years I have used no other treatment in hemorrhage than psychical quieting of the patient, rest in bed, and palliatives for an irritative cough; finally, when the heart is weak and rapid, digitalis, and, at critical times, ligature of the extremities and subcutaneous salt infusions.

It is not my custom to keep the patient for days or weeks on cold and liquid nourishment. What possible styptic influence on a bleeding lung can cold drinks and ice in the stomach exert, or how can lukewarm food increase blood pressure more than cold?

Liquid nourishment is used to spare the patient the necessity of sitting up and chewing. The sucking of ice is helpful in irritation of the throat. Ice bladders on the lungs have only an immobilizing effect, and are better applied over the heart itself. As a means of subduing cough, where a quick result is desirable, morphia hypodermically holds a sovereign place. Codein is to be preferred for continued use, beginning with 4-5 cgm. doses, but only against coughs which are purely irritative and disturb the night's rest.

HYGIENIC AND DIETETIC TREATMENT.

This consists of the four factors—nourishment, rest, fresh air, and suggestion, of which I place the nourishment first. Gain in

weight and improvement of the lung affection go hand in hand. Most consumptives are "bad eaters." Our well-to-do patients consume too little of the fats and carbohydrates; the poorer classes too little of the albuminoids. Find out not only what each one eats, but how much, and the best means of control is by careful weekly weighing. The under-nourished, free from fever, need a mixed diet at the two chief meals. At 7 A. M. I like to give a bowl of Kussmaul's oat porridge (Hafergrütze), which, taken with milk, serves the double purpose of leaving the stomach quickly and offering high, nutritive value. At 8.30 A. M., coffee or tea, with milk, two eggs, bread and butter. Then give the stomach four hours' time for thorough emptying. Frequent feeding destroys appetite. The midday meal is the most important, and tasty preparation, with some variety, is very desirable. Soup of slight nutritive value serves in small quantity as an appetizer; then meat, if possible in two courses, or fish and meat, followed by vegetables; especially stewed fruit and sweet preserves; one to two glasses of wine. At 4 P. M., one-quarter to one-half liter of milk, with bread and butter and cheese, or cocoa. At 7.30 P. M., meat or broth, mashed potatoes, bread and butter, sweetmeats, one glass wine or beer. At 10 P. M., before going to bed, another quarter liter of milk. A little alcohol agrees where it aids appetite and digestion and deepens the respiration; too much, as we know, favors the development of tuberculosis. Tropon, a synthetic albumen, appears well worthy of trial, and Knorr's oat-meal, Hygiena and malt extract are useful additions to milk for our patients.

The dyspepsia of phthisis, as clinical experiments show, in more than 90 per cent. of the cases has nothing to do with secretory or motor insufficiency of the stomach, but is nervous in type, and calls for a complete change in the environment. A stay in the mountains often adds 20 per cent. to the number of red corpuscles, as observers have demonstrated. The medium elevations in our Schwarzwald (Black Forest) offer good climatic conditions in spring, summer and autumn, and the forests are absolutely free of dust. From April to November they are to be visited, and then the high altitudes of the Swiss air cures take their place.

The mental and bodily inactivity of patients who become "cure" tramps, or inmates of institutions year in and year out, is much to be deprecated. I cannot understand the *rationale* of lying down in the open air from 8 A. M. until 10 P. M., as practiced at some winter resorts.

Patients with fever, with the exception of the pernicious peribronchitic or septic forms (and these also during the attack of fever), belong in bed—by the open window, of course. Rest in bed is the best, and, properly speaking, the only antifebrile for pulmonary tuberculosis, and the patient should be taught to use the thermometer and regulate himself accordingly.

Psychical treatment in no other disease, plays a larger *rôle*, but is made difficult by the modern popularizing of medicine. Pa-

tients should be told the truth about their condition, and their confidence thoroughly gained.

Special institutions for the well-to-do offer excellent advantages for training patients in a course of right living. They seldom, however, get their material in the earlier stages, and there are depressing influences at work where so many invalids are grouped together. The personality of the physician in charge can do a great deal, but the individual patient often suffers.

On the whole, I consider and prescribe the "sanitarium" for cases difficult to control in the initial stages as a sterner school and intermediate station for the open-air cures, and recommend it as the best asylum for all seriously ill who are alone in the world.

There is an active movement towards the erection of public hospitals for consumptives, and it is most humane and praiseworthy, but we must not expect a decrease in the mortality rate through their agencies. The fight against consumption as a public scourge, in my experience, is better accomplished by improving the condition of the working classes and of their dwellings, and through the teaching of hygiene in the schools.

AN INQUIRY INTO THE ROLE OF THE DOMESTIC ANIMALS IN THE CAUSATION OF TYPHOID FEVER.

By Wm. Royal Stokes, M.D.,
Baltimore,
Associate Professor of Pathology, University of Maryland; Bacteriologist to the State Board of Health.

This inquiry was undertaken at the suggestion of Dr. John S. Fulton, who has been associated with me in this work, under the auspices of the State Board of Health of Maryand.

The study of house epidemics of typhoid fever in farming communities quite often illustrates certain defects of our knowledge as to the causation of typhoid in general.

The occurrence of a series of typhoid cases in an isolated farmhouse is poorly explained by the detection of colon bacillus in a well. Here direct infection of the water supply by human excrement may be excluded, and the theory that the living typhoid bacilli may traverse many feet of soil lays a heavy tax upon one's reasonable faith in natural barriers. We assume that by whatever route the colon bacillus has reached a well, by the same route the typhoid bacillus may travel. But when we attempt to retrace the path of the colon bacillus from a farm well the reasonable probabilities lead seldom to the bodies of men, and often to the bodies of animals, when we must either return to follow some more doubtful clue, or else confront the hypothesis that the intestines of an animal were in the route traversed by the typhoid bacillus.

It seems worth while, then, to inquire whether the typhoid bacil-

lus can pass alive and virulent through the intestines of animals. If so, the very wide and nearly uniform distribution of typhoid fever in this country will have been explained better than on the theory that human excretions alone furnish the seed, and we shall recognize the need of precautions not heretofore suggested.

If, on the other hand, it is found that the typhoid bacillus cannot survive in the bowels of animals, we shall know that the prevention of typhoid fever is to be accomplished by the destruction of infectious material thrown off by man alone.

The belief that animals may serve as hosts of the typhoid bacillus, and may pass on the infection to man, has abundant support in analogy, *e. g.*, anthrax, rabies, glanders, vaccinia, plague, malaria, tuberculosis, actinomycosis, the filariasis, trichinosis, and a considerable list of grosser parasitic affections.

It was formerly believed that animals suffered with typhoid. Roberts in 1889 reported an epidemic among dogs in a town in India. The symptoms were continued fever, diarrhea, and emaciation (*Indian Medical Gazette*). In many post-mortems he found enlarged spleens, mesenteric glands inflamed and swollen, Peyer's patches swollen, large oval ulcers in the ileum, etc.

Serres (*La Salute Publica*, 1889, Vol. II, p. 280) observed an outbreak of what he regarded as typhoid fever among the monkeys at the Museum of Natural Sciences in Paris, and says that he had previously seen the disease in monkeys, dogs and cats.

An outbreak of typhoid at Kloten (quoted in Albutt, Vol. I) in Switzerland arose from a young man who was believed to have gotten his infection by eating the meat of a calf sick with typhoid fever.

Allen of Pietermaritzburg (*Notter and Firth's Hygiene*) saw cases of typhoid fever which he believed were caused by the milk of cows suffering with typhoid fever. He thought that he excluded other sources of infection. Power made similar observations.

Experimental research has apparently never included the detection of typhoid fever bacilli in the stools of animals, though the immunity of animals to typhoid fever has been well-nigh proven. Murchison in 1867 fed typhoid stools to pigs, with no results. Klein in 1875 repeated these experiments upon various domestic animals, and also fed typhoid stools to monkeys after setting up a diarrhea with croton oil. Klein's results, like Murchison's, were negative.

Birch-Hirschfeld reported that by feeding typhoid stools to rabbits he produced fever, diarrhea, and emaciation, and found at autopsy hypertrophy of the spleen and intestinal glands, and in one or two instances ulceration. By way of control he fed other animals with non-specific diarrheal evacuations, and produced no such results. Bahrdt (*Arch. d. Heilkunde*, 1876) in 1876 failed to confirm the results of Birch-Hirschfeld. Motschutkovsky, employing typhoid blood by inoculation, both in men and animals, got no results.

Klebs and Chomjakov, using both the stools and cultures of

the bacillus, by feeding and by intraperitoneal and subcutaneous injection, obtained practically negative results, though some animals died with subnormal temperature.

Gaffky in 1884 made a long and careful series of experiments with pure cultures injected subcutaneously and into the peritoneal cavity, and by feeding, with a view to determining whether characteristic results would follow. No such results were obtained.

E. Fraenkel and Simmonds (*Die Etiolog. Bedeut d. typhus bacillus*, Hamburg, 1886) injected pure cultures of typhoid bacilli into the peritoneal cavity of thirty-five mice and killed twenty-seven. Five rabbits were injected in the intestine, five subcutaneously, and one in the lung. None of these died. Of twenty rabbits injected intraperitoneally, two died; of forty-six injected in the ear vein, twenty died. The typhoid bacillus was recovered from the spleen in all the fatal cases. A. Fraenkel (*Z. Lehre v. d. path. Eigenshaften des typhus bacillus. Centralbl. f. Klin. Med.*, 1886, No. 10) introduced the bacilli into the duodenum, obtaining positive results in seven out of fourteen guinea-pigs. These animals died from three to seven days after the experiment, and the bacillus was found in the spleen, but not in the walls of the small intestine. The bacillus was not recovered from the blood.

Michael (*Fortsch. d. Med.*, 1886, Vol. II), Fodor (*Deut. med. Wochen.*, 1886, No. 36), and Seitz (*Bact. Stud. Z. typhus etiologie München*, 1886) confirmed these general results. Up to this point it would seem doubtful whether the typhoid bacillus has any sort of pathogenicity for the animals experimented upon. Later experiments go to show that while no animal seems capable of having typhoid fever, normal animals may sometimes be killed by cultures of typhoid, and the bacillus may be recovered post-mortem, while a majority of animals, by measures designed either to diminish the resistance of the animals or to increase the virulence of the germ, may be rendered susceptible to fatal typhoid intoxication.

Thus, after rendering the stomach contents alkaline, and stopping peristalsis by opium, Koch and Seitz found that a dose of 10 c. c. of bouillon culture proved fatal to guinea-pigs in more than half the cases.

Rachford (*Med. News*, 1889, LV, 453) gave rabbits bicarbonate of soda by the stomach, and an intraperitoneal dose of morphia, after which he poured typhoid cultures into the stomach. Ten of them died. He believed that one rabbit died of typhoid fever on the thirteenth day. The pathological findings were characteristic —enlarged spleen, intestinal ulceration, etc. Typhoid bacilli were recovered from the spleen.

Sirotinin (*Zeits. f. Hygiene*, Bd. I, Heft 3), and Beumer and Peiper (*ibid.*), repeating the experiment of Koch and Seitz, concluded that the animals were killed by the soluble poisons in the culture media, and that the results were no more specific than those following experiments with cultures of non-pathogenic organisms.

Widal and Chantemesse, by injecting at the same time typhoid cultures under the skin and sterilized streptococcus bouillon into the peritoneal cavity, were able to recover a bacillus of increased virulence, and, repeating the experiment through a series of twenty-five animals, obtained at last a typhoid bacillus which was fatal to mice and guinea-pigs. These animals did not, however, have a disease resembling typhoid, but a septicemia. Sanarelli also claimed to have produced in the bodies of animals a typhoid bacillus of increased virulence by growing it in association with sterilized cultures of colon bacillus and of pyocaneus. In the experiments of Germano and Maurea, who injected mice with 0.5 c. c. of typhoid bouillon, it was found that in those cases which were rapidly fatal there was evidence of proliferation of the bacillus, but in the cases where death occurred after several days the bacilli in the tissues were far less numerous.

Cygnoeus (*Beitrage Z. Path. Anat. u. z. Allg. Path.*, Bd. VIII, Heft 3, 1890), in addition to the methods of Chantemesse and Widal, fed typhoid cultures by mouth and injected the duodenum and small bowel through an abdominal wound. Of sixteen rabbits, nine died within eleven days, having fever and progressive weakness. Two rabbits fed by the mouth died in three to five weeks. Bacilli were found in intestines, spleen, kidney and liver. From one rabbit injected in the vein of the ear he recovered typhoid bacillus from the feces. No other find of this sort appears to have been made in all these experiments.

The fatal results following experiments of whatever nature have seemed dependent rather upon the quantity of the culture used, or upon the increased virulence of the germ, than upon its activity within the body. Filtered cultures or dead bacteria may be employed with fatal effect. Pfeiffer destroyed the bacilli on agar stroke cultures by exposure to chloroform vapor, and found that doses of three or four milligrammes of the dead bacteria were fatal to guinea-pigs. Brieger was able to isolate from typhoid cultures a ptomain which was fatal to guinea-pigs.

It is thus seen that the insusceptibility of lower animals to typhoid fever has been almost demonstrated. It does not, however, follow that the bacillus of typhoid fever may not live in the bodies of lower animals. The proof is only that the lower animals react to the typhoid bacillus but rarely, and in a non-specific manner. The typhoid bacillus has been found in the feces of human beings in good health, and, therefore, presumably immune (Remlinger and Schneider). It is also well known to have survived in the bodies of individuals long after recovery from typhoid fever.

The first requisite for such an inquiry as we propose is a satisfactory selective medium for the growth of the typhoid bacillus. The first successful medium was that devised by Elsner, which, being inoculated with typhoid dejecta, restrained the growth of all the bacteria, except the typhoid bacillus and the bacillus coli communis. In this medium the typhoid colonies were distinguished by their smaller size and slightly different color. Elsner's

medium is unsuitable for use in the incubator, since it becomes fluid at 37° C. The development of the colonies at a low temperature is necessarily slow. The colon bacillus appears first, after about twenty-four hours, and typhoid bacillus after forty-eight hours or later. Thus it is likely to happen in plates too thickly inoculated that the colonies of typhoid bacillus become obscured by the faster-growing colon bacillus.

A better medium for obtaining typhoid bacillus from the stools is, as we think, that devised by Hiss and described in the *Journal of Experimental Medicine* for November, 1897. His directions for preparing the medium are as follows: "The medium used for plating contains 10 grammes of agar, 25 grammes of gelatine, 5 grammes of beef extract, 5 grammes of sodium chloride and 10 grammes of glucose. Care should be taken to add the gelatine after the agar is thoroughly melted, so as not to alter this ingredient by prolonged exposure to high temperature. The glucose is added after clearing. The reaction of this medium is most important, and if, as is usually the case, it is too alkaline, it is rendered of the desired reaction by adding the determined amount of normal solution of HCl. The medium should never contain less than 2 per cent. of normal acid."

Hiss lays special stress upon this exact reaction as determined by phenolphthalein, and he says that in such a medium he has been able to obtain pure colonies of the typhoid bacillus from a great many cases of typhoid fever as well as from greatly diluted suspensions of the typhoid bacillus in water. This medium remains semi-solid in the incubator. In twenty-four hours, if any typhoid colonies develop, they will present a typical appearance under a low power of the microscope, and can be easily transferred by the pointed needle to other suitable media.

The typical colonies of the typhoid bacillus are thus described: "As seen under the low power the deep typhoid colonies are small, generally spherical, with a rough, irregular outline, and by transmitted light are of a vitreous-greenish or yellowish-green color. The most characteristic feature consists of the well-defined filamentous outgrowths, ranging from a single thread to a complete fringe around the colony. The young colonies at times are composed solely of threads. The fringing threads generally grow out at right angles to the periphery of the colony, and can be seen by focusing up and down to be decidedly connected with it."

This method seemed useful for recovering the typhoid bacillus from the feces of animals after feeding experiments, but before beginning such investigations we determined to find out whether the medium would make a selective culture of the typhoid bacillus when inoculated with various materials containing this germ.

In order to test the efficacy of this method we first plated out fifteen specimens of urine from typhoid-fever patients. From eight of these specimens we obtained numerous colonies of typhoid bacilli, which exactly corresponded to the description given above, and also proved their identity completely by the usual cul-

tural tests for the typhoid bacillus, and by the Widal reaction with known typhoid blood. We also made cultures from twelve typhoid stools, but only obtained colonies of the typhoid bacillus in two cases. These were typical in all respects, however, and as in most of the cases the disease was well advanced or convalescent, the typhoid bacilli may have been no longer present in the stools. We also made artificial mixtures of the colon and typhoid bacillus, and were always able to recognize and to recover the typhoid organism. Pure cultures of the typhoid bacillus also showed characteristic growth in Hiss' medium, and we identified an organism which was obtained from the gall bladder as the typhoid bacillus by its characteristic appearance in this medium, and proving its identity by all the culture and reaction tests.

From our experience with this medium we were convinced that the typhoid organism, if present, might in a certain proportion of experiments be recovered from the feces of animals. Hiss' medium was therefore used in all of our feeding experiments upon animals.

Our first series of animals consisted of two chickens, two white rats and a calf six weeks old. We inoculated a liter flask of bouillon with the typhoid bacillus, and allowed it to develop in the thermostat for forty-eight hours. One-half of the bouillon was fed to the calf in its milk, and the other half was mixed up in the grain given to the chickens, and poured upon the bread eaten by the white rats. The animals were fed in different cages from those in which they were afterwards confined, in order to eliminate any error from admixture of the infected food with the feces. The feces were collected by introducing a sterile glass tube into the rectum, or simply by using the voided material. The rats were caused to defecate when specimens were wanted by grasping them with long forceps just above the pelvis. A slight squeeze of the abdomen always produced an evacuation. The cages were also thoroughly sterilized between each series of experiments.

The feces were diluted in sterile water, and plate cultures were made from these in Hiss' medium every day for two weeks. Almost the only organism which we obtained was the bacillus coli communis, which we proved by the various typical cultural reactions. Occasionally we met with colonies with a slight resemblance to typhoid colonies, and whenever we found such colonies we obtained pure cultures and subjected them to all of the cultural tests for the typhoid bacillus, and the Widal agglutination test with known typhoid blood. None of these colonies turned out to be typhoid organisms, and we were never able to recover the typhoid germ from the feces, even though we had given animals larger doses of typhoid bacilli than they would probably ever obtain by natural methods.

In our second series of experiments we used the same animals, but fed them with the same doses of typhoid every other day for two weeks. Cultures were made every day for this time, but we were not able to isolate a single colony of the typhoid bacillus.

Our next set of experiments was performed upon a male pig, which was given one liter of a 24-hour typhoid culture in his food every day for one month. The feces were examined every day during this time by Hiss' method for typhoid bacilli, and several hundred colonies were tested for the properties of the typhoid bacillus. Not one specimen of the typhoid bacillus was obtained during the entire month. Six specimens of urine were examined also, but with negative results.

At the end of the month, three days after the last typhoid feeding, the pig was killed, and cultures were made from the various viscera, but no typhoid bacilli were found. Cultures were also made from the stomach and the large and small intestines, and agar, as well as Hiss' plates, were used. We were not able to recover any typhoid bacilli from any of these cultures excepting a few colonies of typhoid from the liver. The viscera all appeared normal, and there were no traces of any ulcerations in the intestines. Sections were stained and studied from the viscera, and especially the stomach and intestines, but nothing abnormal was found. It will thus be seen that after one month's feeding we were not able to recover the typhoid bacillus, even at the autopsy, from the intestines.

Two rabbits and two guinea-pigs were also fed for two weeks with a daily dose of about 500 cubic centimeters of typhoid culture placed in their food. Cultures from the feces were taken every day in Hiss' medium, and all suspicious colonies were carefully worked out, but no typhoid organisms were found.

Our last set of experiments was performed upon a young female pig, and since we were able to carry out a thorough series of tests, we shall present our results in this case somewhat in detail. The pig was given daily one liter of a 24-hour culture of the typhoid bacillus, and the feces were taken from the rectum by means of two sterile glass tubes, one passed through the other, so as to avoid contamination from the external parts. The feces were plated in Hiss' medium daily, but no typhoid bacilli were found, although the tests and feeding were carried on for one month. The urine was also examined six times for typhoid bacilli, but none were found.

In order to find out whether the presence of typhoid bacilli in the intestines would produce any effect on the blood, a number of Widal tests were made at regular intervals during the month. Ten tests in all were made, but even at the end of the month the agglutination reaction was absent at a dilution of 1 to 20. The fact that the prolonged introduction of typhoid bacilli into the alimentary tract will not cause any marked agglutinative reaction is in contrast to the condition which can be brought about by the introduction of gradually increasing doses of the typhoid bacillus into the subcutaneous tissues. By carefully regulating the dose we have

already been able to raise the agglutinative power in the blood of this same pig to a dilution of 1-4000.

The temperature of this pig was carefully recorded during the month of feeding, and no considerable variation was noted. The temperature never went above 41° C., and never fell below 40° C., so that the feeding of typhoid bacilli did not cause any decided temperature reaction.

CONCLUSIONS.

In our experiments we have endeavored to produce infection through the natural route and by natural means by simply allowing the various animals to take in very large quantities of typhoid bacilli in their daily food. Although at least 500 colonies from the feces were carefully tested, we were not able to demonstrate the presence of any typhoid bacilli in two chickens, two white rats, two rabbits, two guinea-pigs, one calf, and two pigs. Although we have not employed a large number of animals, we feel justified in expressing the opinion that the typhoid bacillus cannot, as a rule, maintain its struggle for existence in the intestines of the domestic animals. We therefore conclude that the dejecta of animals play no considerable part in the distribution of typhoid fever.

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EXPERIMENTAL PROOF OF THE MOSQUITO-MALARIA THEORY.

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Although the theory that the malarial parasite is transmitted from man to man by particular species of mosquito is now accepted by all biologists and medical men who have given adequate attention to the subject, it cannot be said that the general public (including those Europeans who in malarious countries might benefit by the practical application of the theory) unreservedly believe in it, much less practically apply it. Endless objections, the outcome of an imperfect acquaintance with the subject—and perhaps of a disinclination to admit that a pathological puzzle of so many centuries' standing could receive so simple an explanation—have been raised by the amateur biologist and sanitarian; so much so that it seemed not improbable that a great principle, pregnant with important issues, might remain barren and unutilized.

Impressed with this fear and being anxious to see some fruit from a theory which I knew to be true and for which I was in a measure responsible, I cast about for means by which the conversion and co-operation of the public might be secured. I felt that unless the public believed in the efficacy of the sanitary measures so definitely indicated by the mosquito-malaria theory and to some extent understood the principles on which these measures should be founded they would not adopt them or, what is so necessary to the success of all such measures, co-operate heartily in carrying them out. As the histological, biological, and experimental evidence which had satisfied men of science was not understood by the public, it seemed to me that some simple demonstration was required such as would be unanswerable and at the same time readily comprehended by laymen.

Grassi, in conjunction with Bignami, had succeeded in conveying malaria by mosquito bite. Although these experimenters took every care to exclude fallacy, the fact that the experiments were made in Rome—itself of fever repute and in the middle of a highly malarial district—had an undoubted influence in preventing due appreciation by the public of the conclusive nature of their work. Furthermore, things occurring at a distance and in a strange land do not appeal so strongly as do things happening in our midst. It occurred to me, therefore, that if I repeated Grassi and Bignami's experiments in a more dramatic and crucial manner; that

if I fed laboratory-reared mosquitoes on a malarial patient in a distant country and subsequently carried the mosquitoes to the center of London and there set them to bite some healthy individual free from any suspicion of being malarial, and if this individual within a short period of being bitten developed malarial fever and showed in his blood the characteristic parasite, the conclusion that malaria is conveyed by the mosquito would be evident to every understanding and could not possibly be evaded. It also occurred to me that if a certain number of Europeans who had never suffered from malaria kept in good health and free from malaria during an entire malarial season in an intensely malarial locality where all inhabitants and visitors suffered from malaria, and if they kept well without the use of quinine of other medicinal prophylactic, simply by avoiding mosquito-bite, that the above conclusion would be accentuated, and also that if this immunity were attained by inexpensive means, means which did not interfere seriously with comfort, pleasure, or business, the mosquito-malaria theory would not only be proved to the satisfaction of the public, but the public would be willing to accept the sanitary measures which the theory and experiments indicated. After having obtained promise of support from the Colonial Office and from the London School of Tropical Medicine and securing volunteers for the experiments, still further to accentuate my object and to arrest the attention of those principally interested, I publicly announced in a popular lecture at the Colonial Institute that the above experiments were about to be undertaken, and with the same object in view I ventured to forecast their issue.

EXPERIMENT I.

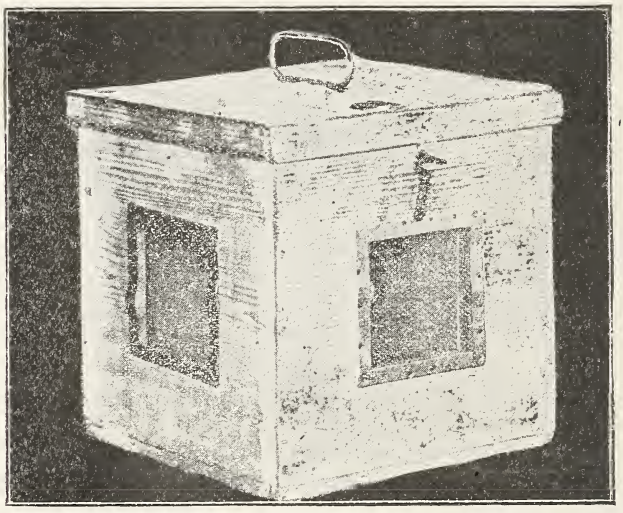
Dr. Bignami and Dr. Bastianelli very kindly undertook to send me relays of infected mosquitoes from Rome. I have to thank these gentlemen for the great care exercised in this somewhat responsible matter. Every case of malaria coming to a general hospital is not suitable for experiment. To have sent mosquitoes infected with malignant tertian parasites might have endangered the life of the subject of the experiment, and quartan-infected insects might have conferred a type of disease which, though not endangering life, is extremely difficult to eradicate. The cases, therefore, on which the experimental insects were fed had to be examples of pure benign tertian, a type of case not readily met with in Rome during the height of the malarial season, and the absolute purity of the infection could be ascertained only by repeated and careful microscopic examination of the blood of the patients.

When the insects had fed, Dr. L. Sambon, who had gone to Rome in connection with Experiment No. II, placed them in small cylindrical cages made of mosquito netting stretched on a wire frame. Four such cylinders were packed in a well-ventilated box and forwarded to the London School of Tropical Medicine through the British embassy in Rome. By the courtesy of the Postmaster-

General they came forward by the Indian mail, so that they arrived in London some forty-eight hours after leaving Rome. A good many of the mosquitoes died on the journey or soon after arrival, but a fair proportion survived and appeared to be healthy and vigorous. We are indebted to Dr. Sambon for the method employed of caging mosquitoes. Future experimenters will find it very useful. To infect the insect or to become infected by them the experimenter has merely to place his hand in the cage after carefully untying the netting at one end or, better, by laying the closed cage on his damped hand.

The following notes regarding this experiment are by Mr. P. Thurburn Manson, Guy's Hospital:

"I am twenty-three years of age. I was born in China, but have lived in this country since I was three years old, and have never



VENTILATED BOX FOR SHIPPING MOSQUITOES.

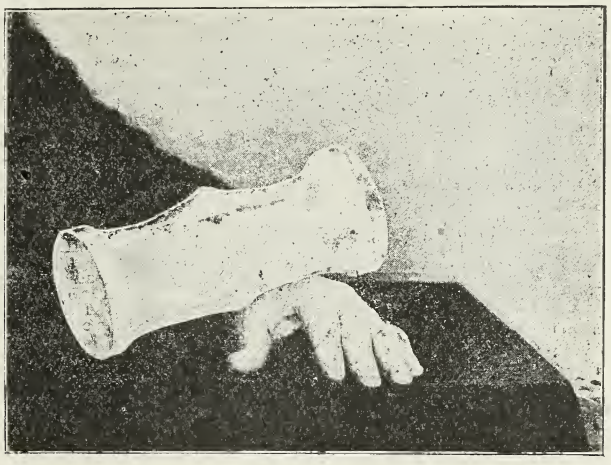
been abroad since nor in any district in this country reputed to be malarial. I am healthy.

"The first consignment of mosquitoes arrived at the London School of Tropical Medicine on July 5. Only some half dozen had survived the journey. They were in a languid condition and would not feed satisfactorily. One may have bitten me. By July 7 they were all dead. The second consignment arrived on August 29. They had been infected in Rome on August 17, 20, and 23 by being fed upon a patient with a double benign tertian infection. The patient was reported to have had numerous parasites, including many gametes, in his blood. On arrival twelve insects were lively and healthy-looking. I fed five of them on August 29, three on August 31, one on September 2, and one on September 4. They bit my fingers and hands readily. The bites were followed by a consider-

able amount of irritation, which persisted for two days. The third consignment arrived on September 10. They had been fed in Rome on September 6 and 7 on a patient suffering from a simple tertian infection, but with very few parasites in his blood. There were some fifty to sixty mosquitoes in good condition. Twenty-five bit me on September 10 and ten on the 12th.

"Up till September 13 I had been perfectly well. On the morning of the 13th I rose feeling languid and out of sorts, with a temperature of 99° F. By midday I was feeling chilly and inclined to yawn. At 4.30 P. M. I went to bed with severe headache, a sensation of chilliness, lassitude, pains in the back and bones, and a temperature of 101.4°. Repeated examinations failed to discover any malarial parasites in my blood.

"September 14.—I slept fairly well, but woke at 3 A. M. with



INTERIOR CARRYING CAGE FOR MOSQUITOES, SHOWING THE MANNER OF FEEDING.

slight sweating and a temperature of 101°. During the day my temperature ranged between 101° and 102°. The symptoms of the 13th were exaggerated and anorexia was complete. Several examinations of the blood were made again with negative result. To relieve headache ten grains of phenacetin were given at 6 P. M. I perspired profusely, but slept indifferently.

"September 15.—I woke at 7 A. M., feeling distinctly better, with a temperature of 100.4°. No malaria parasites were discovered on repeated examinations of my blood by my father. About 2 P. M. I commenced to feel slightly chilly. This soon wore off, and I became hot and restless. By 4.30 P. M. my temperature was 103.6°. It remained about 103° till 9 P. M., when profuse sweating set in. I am told there was some delirium.

"September 16.—I woke at 8 A. M. feeling quite well. My temperature was 98.4°. I made several blood examinations, and found

one doubtful half-grown tertian parasite. In the afternoon and evening there was a recurrence of fever (temperature 102.8°) relieved by sweating.

"September 17.—I again felt quite well on waking after a good night's sleep. My temperature was 99°. At 10 A. M. several half-grown parasites, a gamete, and two pigmented leucocytes were discovered in the first blood film examined. During the day many tertian parasites were found. Their presence was verified by my father and by Dr. Frederick Taylor, Lieut.-Col. Oswald Baker, I.M.S.; Dr. Galloway, Mr. Watson Cheyne, F.R.S., and Mr. James Cantlie, some of whom saw the films prepared. About 2 P. M. the sensation of chilliness returned (temperature 101.8°). By 5 P. M. the temperature had reached 103°. There was then copious sweating. The edge of the spleen could be felt on deep inspiration, and there was a slight feeling of discomfort in the region of that organ. Dr. Frederick Taylor and Mr. Watson Cheyne confirmed the presence of splenic enlargement. By 9 P. M. the temperature had fallen to 99.2°, and I was feeling better. Quinine (ten grains) was taken.

"September 18.—I woke after a good night feeling perfectly well (temperature 97°). Ten grains of quinine were taken, and subsequently five grains every eight hours. I continued perfectly well all day. A few three-quarter-grown tertian parasites and some gametes were found during the forenoon and afternoon. They were seen by Dr. Oswald Browne, by my father, and by myself. At 10 P. M. the parasites had disappeared, the last being found at 5 P. M.

"September 19.—No parasites were discovered. The temperature is normal. I am feeling quite well. There is no splenic enlargement and no tenderness. Appetite has returned.

"September 25.—In good health. No recurrence of malarial symptoms."

EXPERIMENT II.

A wooden hut, constructed in England, was shipped to Italy and erected in the Roman Campagna at a spot ascertained by Dr. L. Sambon after careful inquiry to be intensely malarial, where the permanent inhabitants all suffer from malarial cachexia, and where the field laborers who come from healthy parts of Italy to reap the harvest after a short time all contract fever. This fever-haunted spot is in the King of Italy's hunting-ground near Ostia, at the mouth of the Tiber. It is water-logged and jungly, and teems with insect life.

The only protection against mosquito bite and fever employed by the experimenters was mosquito-netting wire screens in doors and windows and, by way of extra precaution, mosquito nets around their beds. Not a grain of quinine was taken. Dr. Sambon

THE MALARIA EXPERIMENTS.

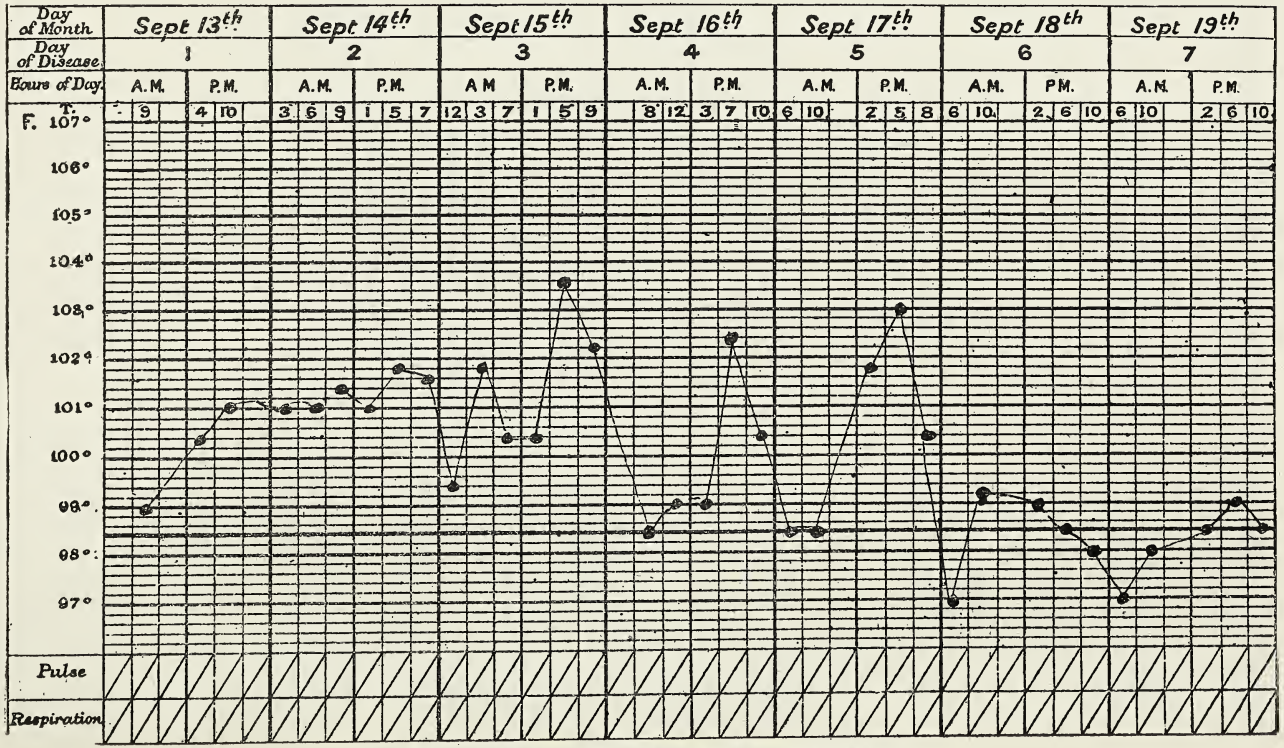


Chart of Temperature after Experimental Infection with Malaria.

and Dr. G. C. Low, Signor Terzi, and their two Italian servants entered on residence in their hut early in July. They go about the country quite freely—always, of course, with an eye on anopheles—during the day, but are careful to be indoors from sunset to sunrise. Up to September 21, the date of Dr. Sambon's last letter to me, the experimenters and their servants had enjoyed perfect health, in marked contrast to their neighbors, who were all of them either ill with fever or had suffered malarial attacks.

For the present I content myself with announcing this result. Complete details of their experiences will doubtless be made public by Dr. Sambon and Dr. Low at the termination of the malarial season and of their experiment at the end of October. Suffice it to say that these gentlemen express themselves as satisfied that protection from mosquito bite protects from malaria, and that protection from mosquito bite is perfectly compatible with active outdoor occupation during the day.

It remains for the public to apply the lesson taught by these experiments. Will this be done? Already I have heard objections and difficulties mooted. I saw it advanced recently that it is impossible to avoid mosquito bite in the tropics and that it is useless to try to do so. One has sometimes to go out in the evening. A medical man, for example, must visit his patient at any hour. This is quite true; but, surely, because we cannot escape a risk altogether this is no reason why we should not try to minimize it. Dr. C. W. Daniels, who has recently returned from British Central Africa, tells me that not one mosquito in a thousand in that country carries malarial zygotes—that is to say, is infective. If a man exposes himself, therefore, in British Central Africa to mosquito bite habitually so that he gets bitten, say, ten times every night, the chances are that he is effectually inoculated with malaria some four times a year; but if the same man systematically protected himself from mosquito bite and, in consequence of his care, reduced the chances of being bitten to once a month, he may be 100 years in British Central Africa before he gets infected. The minimizing of risk is certainly worth striving for.

The question of expense cannot for a moment be entertained in discussing the means for protection. One life saved, one invaliding obviated, would, even in a pecuniary sense, pay for all the wire gauze and mosquito netting requisite to protect every European house in West Africa.

These experiments, together with the work of Ross, Grassi, Celli, Bignami, Bastianelli, and other Italians, and the recent observations on native malaria by Koch and the representatives of the Malaria Commission of the Royal Society and Colonial Office, plainly indicate that the practical solution of the malaria problem lies (1) in avoiding the neighborhood of native houses, the perennial source of malaria parasites; (2) in the destruction, so far as practicable, of the breeding pools of anopheles, and principally (3) in protection from mosquito bite.

A CASE OF INTRAVESICAL DILATATION OR BALLOONING OF THE URETER.

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The following case is interesting principally on account of a peculiar intravesical balloon formation at the end of the left ureter. The history is as follows:

J. W., aged forty-nine years. Complaint, burning on urination; swelling of testicle. No history of tuberculosis. Gonorrhea thirty years ago. No history of epididymitis or other complications. Denies syphilis. Has had no lung trouble.

Fourteen months ago, without apparent cause, blood escaped from the urethra during an interval between urinations. Has not noticed any subsequent bleeding, but since then urination has become more frequent and irritating. He now has to get up three or four times every night to void urine. He does not know when the testicular swelling began.

Examination.—A thin, rather anemic man. Chest is rather asymmetrical. Left clavicle not as prominent, and lower than the right. Marked depression at the lower end of the sternum. Expansion good and equal. Percussion note perfectly clear in front. On auscultation the fronts are clear, except for an occasional dry crackle of pleural origin in lower fronts. Backs show the asymmetry more markedly than the fronts, but auscultation and percussion are negative. Heart normal. Abdomen negative. No tenderness in the region of the kidneys, nor in the hypogastric region.

Genito-urinary Examination.—The urethral meatus is reddened, but no discharge is present. There is a small hydrocele of the right side; the epididymis presents a nodular, very firm, semi-elastic mass in the globus minor, about 2 c. m. in diameter. In the globus major are several smaller nodules. There is no tenderness evinced on pressure; no fluctuation. The testis seems normal.

Rectal examination shows considerable enlargement of the right lobe of the prostate, the surface of which is nodular and indurated. The left lobe is smaller than the right, but is also considerably indurated at the lower end. The left seminal vesicle and vas deferens are enlarged and indurated, and tender. The right is not palpable.

Urine.—Strongly acid, cloudy. Albumen very abundant, microscopically; pus cells; very few epithelial cells. Tubercle bacilli present in great numbers (the smegma bacillus being excluded by alcohol test).

Cystoscopic examination revealed very peculiar intravesical changes. The right half of the bladder was perfectly healthy in appearance, and the ureter on that side was normal. On the left side, over an area extending from the urethral orifice around and behind the left ureter, outward along the left lateral wall, and also a portion of the anterior wall of the bladder, the mucous membrane was markedly changed, of a general deep-red color, individual vessels not visible, and the surface rough, thrown into folds, with irregular superficial ulcerations scattered over it.

The cystoscopic picture was an unusual one for tuberculosis, showing itself more as thickening and congestion of the mucosa, without much ulcer formation.

The Left Ureter.—While hunting for the mouth of the left ureter a very peculiar smooth, glistening, round tumor the size of a small grape was seen, but was soon lost sight of. The left ureteral ending was then found appearing as a fine pinpoint opening, lying among a wrinkled mass of mucous membrane. While watching for the urine to spurt from this orifice the small, round tumor suddenly appeared, and then as rapidly disappeared. On further study it was found to rise up like a balloon at intervals of about twenty seconds, carrying with it the ureteral orifice, from which urine was ejected in a fine, forcible stream. The balloon would remain fully distended as long as the flow of urine from the orifice continued, and then it would suddenly collapse into a mass of wrinkled mucous membrane.

In the *Johns Hopkins Hospital Bulletin* for October, 1896, Blumer has reported a similar case, and has collected thirteen cases from the literature.

Blumer says that these cases come under two main categories: 1st, those in which there is a distinct evidence that the condition is due to congenital deformity; 2d, those cases in which the process has apparently resulted from some acquired abnormality.

Out of the fourteen cases, two were evidently of congenital origin, and in five cases led to death early in childhood, generally through infection. The deformity in these congenital cases consisted for the most part in a partial or complete closure of the lower ureteral orifice.

Blumer thinks that, as far as the mechanism of the pouching is concerned, the cases can be divided into two classes—those in which there is a uniform dilatation from the pelvis of the kidney down to the end of the sac, and those in which the pelvis of the kidney and main portion of the ureter are not dilated, the sacculation occurring only at the extreme lower end of the ureter.

Our case evidently belonged to the latter class.

Boström held that in these cases the deformity was due to the fact that the ureter did not pass obliquely, but straight through the bladder wall, and the area of ureter surrounded by muscle was

therefore smaller than normal, and insufficient to withstand the downward force of the urine against the narrowed orifice.

Burckhard held that the abnormality came not so much from the abnormal position of the ureter as from a congenital lack of musculature of the bladder wall.

Neither explanation appears correct for our case, which was probably seen in an earlier stage than any of those reported. Here there was no evidence that the bladder muscle was lacking in thickness, for the bladder in this region was thickened; nor that the ureter pursued an abnormal course through the bladder wall.

The stricture at the ureteral orifice was evidently cicatricial in character, and, from the history, of recent date. The ballooning had evidently occurred in that portion of the ureter which had passed through the bladder muscle, and was only covered by mucous membrane. This is shown by the way the sac would collapse as soon as the ureteral peristalsis had ceased to force the stream of urine through the narrowed orifice.

The term prolapse would certainly be inappropriate in our case, as it was essentially a ballooning of that portion of the ureter between the bladder musculosa and the strictured orifice of the ureter. In this it may have been unlike any of the other four cases of this class of acquired deformity detailed by Blumer, but perhaps only in that it represented an earlier stage of the same process.

It does not seem necessary to have had either an abnormal ureteral course through the bladder or a deficiency of vesical muscle around the ureter for the production of the condition, but that it may have been due to a dilatation of the ureter where it lies beneath the mucous membrane after having penetrated the muscular coat.

LIGHT AS A REMEDIAL AGENT.

J. W. KIME of Fort Dodge, Iowa, has proved that daylight has a power of penetration exceeded "only by the Roentgen rays." He presents in the *Medical Record*, October 13, three photographic prints which were made by light passed in one case through the thorax, in another case through the hand, and in the third instance through the hand. His paper is a contribution to the therapeutic use of light, giving the histories of two cases of lupus cured by light.

MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

HYDROTHERAPY IN PNEUMONIA.—THE VALUE OF THE LUMBAR PUNCTURE IN DIAGNOSIS AND THERAPEUSIS.—MOVABLE KIDNEY AND ENTEROPTOSIS.

HYDROTHERAPY IN PNEUMONIA.

Baruch (*Medical Record*, 1900, August 4, p. 168) contributes an article of great interest on the subject upon which he has expended so much time and thought during many years—"hydrotherapy in pneumonia." After reviewing the great changes which have been undergone in medicine during the past century, especially as regards the self-limitation of disease and the establishment of rational methods of treatment, he devotes himself to a discussion of the indications to be met in treating pneumonia and the proper means of meeting them.

According to him, pneumonia is an infectious disease, which tends to destroy life by enfeebling the nervous and circulatory systems, and the indications for overcoming this lethal tendency are: (1) to fortify the nervous system; (2) to sustain the heart, whose integrity is of vital import in overcoming the local lesions, and in removing inflammatory products by a vigorous circulation; (3) to strive for elimination of noxious products arising from the life and death of the diplococcus; (4) to render the patient comfortable by reducing high temperature, deepening inspiration and producing sleep.

These indications are best met, according to Baruch, by hydrotherapy, he, however, preferring, as a rule, the use of wet compresses to the cold-bath treatment, because of the rapidity with which the pneumonia patient responds to heat abstraction.

Shock is carefully avoided by the choice of the proper temperature of the compress and the length of time of its application, in some cases applications for a brief period of very cold compresses (60° F.) being advisable, in others a longer application of compresses of a higher temperature (95° F.), the former being more stimulating, the latter more soothing and antipyretic. In other words, "treat it as you would any other remedial agent; change the method, the temperature, the duration, and you will be gratified by the result, for it is a most flexible agent."

Besides its general stimulating effect, cold, by its local stimulating effect upon the cutaneous circulation, producing first contraction, but shortly afterwards dilatation of the arterioles, relieves "the overburdened heart of much labor—labor, too, which it vainly endeavors to compensate by increased contractions, the sum of which too often leads to heart failure."

The elimination of noxious products is, of course, increased by

the improved conditions of the central nervous system and heart, as is well shown by the increased toxicity of the urine after the external applications of cold in pneumonia.

Baruch also attempts to increase urinary excretion by the systematic administration of very cold water (45° F.), giving four to six ounces every other hour.

The fourth therapeutic indication: "The comfort of the patient is greatly enhanced by the reduction of temperature, deepening of respiration and general *bien-aise*, which are renewed on each application."

Resolution seems to be the only condition unaffected by this treatment. Baruch observed crisis in only about one-fourth of his cases, and in some respects the local course of the disease seemed changed, resolution proceeding more slowly, "but more surely."

Although Baruch is an enthusiast on the hydrotherapeutic treatment of pneumonia, the *rationale* of the treatment is so apparent, and the success of his methods so marked in the comparatively small number of cases treated by this method, that it would seem that hydrotherapy in pneumonia should demand a much wider and more general application than it has received up to the present time.

THE VALUE OF THE LUMBAR PUNCTURE IN DIAGNOSIS AND THERAPEUSIS.

Hand ("A Critical Summary of the Literature on the Diagnostic and Therapeutic Value of Lumbar Puncture," *American Journal of the Medical Sciences*, 1900, October) contributes a very careful and unbiased review of the value in diagnosis and therapeusis of the lumbar puncture since the method was first described in 1891 by Quincke, who used the operation as a substitute for the more dangerous one of tapping the ventricles to relieve excessive intracranial pressure in chronic hydrocephalus.

According to Hand, the therapeutic indications of this method are (a) to relieve excessive pressure by the cerebro-spinal fluid on the brain and cord, and (b) to remove active deleterious bodies which may be present in the cerebro-spinal fluid.

Increased tension in the cerebro-spinal fluid is caused by all inflammations of the internal or external membranes, including hydrocephalus, chlorosis, tumor, traumatism, and toxic states, as in plumbism, uremia, and the infectious fevers.

Pfaundler has definitely shown that this pressure or tension is made up of three distinct elements—hydrostatic, vascular, and elastic. The vascular is the most important element in the pressure, as to this the pressure-symptoms are mainly due. Pfaundler found that normally the subarachnoid pressure with the patient in the sitting posture is from 20 to 25 mm. of mercury, half of which disappears when the patient lies down, as it is hydrostatic. The determination of pressure, manometrically, is, however, not feasible outside of the hospital, and does not concern the general practi-

tioner so much as the other points of the operation, the technique of which is practically the same as originally suggested by Quincke, *i. e.*, introducing the needle between the third and fourth lumbar vertebrae, 5 to 10 mm. to either side of the median line, until it enters the spinal canal. In determining the diagnostic value of the puncture it is obviously necessary at first to know the exact constitution of normal cerebro-spinal fluid, so that it may be used as a criterion. Numerous scientists have investigated this point, and agree that it is a faintly alkaline, sterile, perfectly clear and colorless fluid, with a specific gravity ranging from 1.001 to 1.009, containing albumen and sugar, and free from cells and other morphologic elements.

Comba, in discussing the diagnostic value of this examination, especially as regards the presence or absence of sugar, comes to the following conclusions:

1. In cerebro-spinal fluid drawn during life from children not attacked with meningitis there exists constantly a glucose-like reducing substance.

2. In tuberculous meningitis the glucose is found in small amount at the start, and is absent toward the end.

3. In the meningitis due to the meningococcus of Weichselbaum and to the diplococcus of Fraenkel the absence of glucose in the exudate is constant.

4. The diminution and disappearance of glucose in the cerebro-spinal fluid are probably due to the glycolytic action of the nucleo-proteids of the leucocytes rather than to that of the bacteria contained in the exudate.

5. The proportion of glucose is less than that of the blood (5 to 15 c. cm. per 100, according to Bunge), which tends to prove that it is a product of secretion rather than of transudation.

As to the amount of albumen, speaking generally, more than .25 parts per 1000 speaks for inflammation, the usual amount in meningitis being two to three per 1000.

As to the character of the fluid, according to some observers it is always turbid or cloudy in purulent meningitis, always clear in tuberculous meningitis; according to others the fluid is always turbid in inflammatory conditions, although much less so in the tuberculous than in the purulent variety of meningitis.

To other characteristics of the withdrawn fluid are assigned a *rôle* of varying significance by different observers. Thus, according to some, the fibrin formation of menigitic fluid on standing offers a valuable point in diagnosis from normal fluid; others insist that blood cells, unchanged, are probably due to the trauma of the operation, while, if crenated and changed, they suggest injuries to the head, or spine, or apoplexies.

The bacteria found in the cerebro-spinal fluid are the following: Staphylococci, streptococci, pneumococci, typhoid bacilli, colon bacilli, tubercle bacilli. In regard to the last-mentioned micro-

organism, some observers think it is impossible to find it in the majority of cases of tuberculous meningitis; others, however, think that a very careful search, with a very perfect technique, will reveal its presence in practically every case.

As to the therapeutic value of the lumbar puncture, it is certainly palliative in diminishing the pressure in tuberculous meningitis, and beneficial in epidemic cerebro-spinal meningitis. The procedure is probably of no value in brain tumor, and has been abandoned in apoplexy, hemorrhagic pachymeningitis, softening and embolism, while in chlorosis relief from the headache has been obtained by the withdrawal of a comparatively small amount of fluid (70 c. cm.).

From a consideration of these and other facts Hand comes to the following conclusions:

1. Lumbar puncture has a wider field as a diagnostic aid than as a therapeutic means.

2. As an aid to diagnosis, lumbar puncture is of value only when examination of the fluid gives positive results. It is not safe to draw conclusions from negative results.

3. Therapeutically it is of value in epidemic cerebro-spinal meningitis to bring about recovery; in tuberculous meningitis to promote comfort, and in other conditions of excessive pressure to favor recovery by removing a condition immediately dangerous to life.

MOVABLE KIDNEY AND ENTEROPTOSIS.

Godart-Danhieux (*Gazette hebdomadaire de Medicine et de Chirurgie*, 1900, No. 14), after a careful consideration of a great number of cases of both of these conditions, arrives at the following conclusions:

1. The number of pregnancies is the most important cause of the diminution in tension of the abdominal wall, and consequently of enteroptosis.

2. Age accentuates this condition, and its *rôle* in the production of this condition appears indisputable even in nullipara.

3. Neither the multiplicity of the pregnancies nor the age plays the same *rôle* in the pathogenesis of movable kidney.

4. Enteroptosis, a phenomenon produced essentially by a diminution of abdominal tension, is not always accompanied by nephroptosis, and *vice versa*.

5. From the lack of parallelism between the factors which tend to produce the two conditions, and from the fact that the two varieties of ptosis are far from being observed simultaneously, one must admit that the pathogenesis of enteroptosis is not identical with that of nephroptosis or movable kidney.

6. The causes which determine the production of nephroptosis appear to be independent of the alterations of the intra-abdominal tension.

PATHOLOGY.

By Jose Hirsh, M.D., Baltimore.

A Bacteriological and Microscopical Study of Over Three Hundred Vesicular and Pustular Lesions of the Skin, with a Research Upon the Etiology of Acne Vulgaris. T. Caspar Gilchrist. *Welch Festschrift*, pp. 409-430.

It is impossible in a short review to do justice to Gilchrist's paper. The following are some of the results obtained by him:

Impetigo Contagiosa.—Of this disease seventeen cases of varying degrees of severity were studied. Cultures of streptococcus pyogenes were obtained in every case—in ten cases in pure culture; in the other seven cases a few colonies of staphylococcus aureus were associated.

Ecthyma.—Cultures from two cases showed pure cultures of streptococcus pyogenes.

Folliculitis Staphylogenes.—In two cases streptococcus pyogenes in pure culture; in five cases staphylococcus pyogenes albus and streptococci were present; in seven cases staphylococcus was present in pure culture; in one case staphylococcus pyogenes albus and staphylococcus pyogenes citreus, and in one case albus only. These results favor the view that the lesions are not due in all cases to one and the same organism.

Tricophytosis.—Experimentation in these cases showed that certain of the tricophyta possess pyogenic properties. With a pure culture of tinea megalosporon ectothrix isolated from a case of tinea barbae the arms of two men were inoculated. Both men developed the disease, and cultures from the pustules showed pure colonies of the fungus, with no cocci present. Similar results followed inoculation experiments from a case of tinea circinata. These experiments demonstrated that the tinea megalosporon endothrix is a pyogenic organism, and that the pustules in these cases were not caused by any of the ordinary pus organisms, but by the tinea itself.

Similar bacteriological studies were made in cases of furuncolosis, scabies, whitlow, sycosis vulgaris, syphilis, herpes zoster, eczema, etc.

The results obtained by Gilchrist in his studies of acne vulgaris are of especial interest.

Smears and cultures were made from ninety-six pustules from fifty-five patients suffering from typical acne vulgaris.

The smears from all the pustules showed the presence of bacilli of slightly varying length, but all belonging to one organism. Pure cultures of the organism after one week's growth presented following features: A pure white pultaceous mass, which was ele-

vated, moist, smooth and glossy, with a regular edge. The bacillus grew on blood serum, in glucose agar without formation of gas, in bouillon which became cloudy, and on potato, but invisible to the naked eye. No growth on stab culture in gelatine, in milk, or in Dunham's solution; poor growth on glycerine agar.

The morphology was a short, thick bacillus as seen in smear from pus; in cultures longer, thicker, and showed division; branching forms were often seen in older cultures; does not decolorize by Gram's method; no capsule; slight motility. Inoculation experiments show that the bacillus is pathogenic for mice and guinea-pigs.

From his studies on acne vulgaris the author concludes that the pustules of acne vulgaris are due not to the invasion of ordinary pus organism, but rather to a specific bacillus, which he calls the *bacillus acnes*.

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SECONDARY INFECTION OF THE SKIN AND SUBCUTANEOUS TISSUES BY BACILLUS TYPHOSUS. J. H. Pratt. *Journal of the Boston Society of Medical Sciences*, Vol. III, 1899.

Pratt reports two cases of secondary infection of the skin and subcutaneous tissue by the typhoid bacillus.

One case was a 14-year-old boy in whom one month after an attack of typhoid fever a subcutaneous abscess formed over the olecranon. Cultures from the pus of this abscess showed typhoid bacilli in pure cultures.

The second case was in a woman, fifty-two years old, who, during the attack of typhoid fever, had several severe intestinal hemorrhages. Five days before death a peculiar violet-colored swelling appeared on the inner side of the right leg. The skin over the swelling was thin and the connective tissue about it indurated. Opened under aseptic precautions there flowed out a bloody serous fluid, which gave a positive Widal reaction, and contained a pure culture of typhoid bacilli.

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STUDIES UPON THE ETIOLOGY OF CARCINOMA AND PATHOGENIC BLASTOMYCETES. Leopold. *Archiv f. Gynakologie*, Bd. LXI, 1900, pp. 77-120.

According to Leopold there can be no doubt that an etiological relation exists between the blastomycetes found in the carcinomas of man and those blastomycetes obtained from experimental malignant growths. It is well recognized that blastomycetes can give rise to malignant tumors in human beings, and when inoculated into animals likewise give rise to new growths which cause death.

Leopold has always held that the immediate cause of malignant growths in man are parasites, and, in carcinoma, blastomycetes, and that these malignant tumors are to a certain extent infectious. In order to demonstrate that the blastomycetes found in experimental growths could be cultivated, and when inoculated into

other animals would give rise to malignant growths, Leopold has pursued the following lines of investigation:

1. Blastomycetes were found in a fresh ovarian carcinoma.

2. From this fresh specimen blastomycetes were isolated in pure culture.

3. This pure culture when injected into the testicle of a rat gave rise to a large number of peritoneal tumors, which proved fatal to the animal, and showed, in fresh as well as hardened specimens, numerous blastomycetes.

Should it be found possible with the cultures obtained from the rat to infect other rats the chain will be complete, and, the author asserts, "the etiological relation of blastomycetes to malignant growths will be upon a firm basis."

Leopold is still engaged in his investigation.

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THE PATHOLOGICAL ALTERATIONS OF THE KIDNEYS IN PULMONARY TUBERCULOSIS IN REFERENCE TO THE PASSAGE OF TOXINS AND TUBERCLE BACILLI. G. D'Arrigo. *Centralblatt f. Bak. and Infektions Krank.*, September 4, 1900.

The lesions which we observe in the kidneys of tubercular subjects have for the most part been regarded as secondary toxic changes, brought about by the passage through the kidneys of toxic substances which act detrimentally upon the glomeruli and the epithelium of the renal tubules. Indeed, Prof. Schron of Naples claims to have isolated the specific crystalline substance (tisine) from the kidneys of tubercular cadavers.

D'Arrigo examined a number of kidneys of phthisical subjects with especial reference to the presence of tubercle bacilli in those organs. He collected the kidneys of ninety-eight people who died of pulmonary tuberculosis in various stages. In the present communication he reports the results of a very careful study of twelve of them. While three of these cases showed localized tubercular nodules at the apices, nine showed extensive involvement of both lungs. In the three cases the kidneys were in the stage of a beginning chronic interstitial nephritis. Examination for tubercle bacilli proved negative. In the nine cases the changes in the kidneys were more marked. Besides a far advanced chronic interstitial nephritis, all the kidneys showed a glomerulo-nephritis and marked degeneration of the renal epithelium. Areas of coagulation necrosis were likewise noted. Thickening of the vascular walls, endarteritis, and a small cell infiltration of the perivascular lymph channels were constant. In all nine cases tubercle bacilli were found in the necrotic glomeruli.

The author draws from his study the following conclusions:

"1. In the kidneys of phthisical individuals, in the mild as well as in severe forms, alterations in the vessels, interstitial substance, and renal epithelium are invariably present.

"2. In the early stages of pulmonary tuberculosis the kidney lesions are not severe, and appear to be due to the passage of the

toxin through them. This tubercular toxin attacks, first, the vessels; secondarily, the interstitial connective tissue and the epithelium.

"3. If the tubercular process in the lungs increases, besides the toxins, the tubercle bacilli are carried to the kidneys and form colonies.

"4. The colonization of the bacilli in the kidneys is facilitated by the circulatory and functional disturbances (of that organ) which are caused in the beginning by the toxin. In this way the kidneys become a *locus minoris resistentiae.*

"5. It is difficult to state definitely in what way the bacilli reach the kidney, but it must be through the circulation. In most cases the bacilli were found in the glomeruli and in the interstitial connective tissue—never in the blood-vessels or in their walls. These cases must not be confounded with acute miliary tuberculosis."

The author promises us a more complete and satisfactory statement of the subject when he has completed the study of his entire series.

* * *

MULTIPLE MIXED-CELL SARCOMA: THROMBOSIS OF LEFT INNOMINATE, SUBCLAVIAN AND INTERNAL JUGULAR VEINS; OCCLUSION OF THORACIC DUCT: CHYLOUS ASCITES AND CHYLO-THORAX. Mandlebaum and Libman. *Mount Sinai Hospital Reports.*

The authors report the following interesting case:

R. K., male, aged nineteen years, was operated upon fifteen months before his admission to the hospital, and a small tumor, which had been present for four months, was removed from left side of his neck. At this time he first noted a swelling in both axillary regions. Three months later his abdomen became distended, and in the scar left from the operation a small tumor became noticeable. He now entered the hospital. Several hard nodulated masses were felt in both axillae and on both sides of the neck—most prominent, however, on the left side. As signs of a pleural exudation existed in the right chest, he was aspirated, and a white, milky fluid was obtained. Chemical and microscopic examination showed this fluid to be an admixture of serum with chyle, without the presence of distinct fat globules. His abdomen was also aspirated, and contained similar fluid. The chest and abdomen were aspirated every second day, and at each sitting an average amount of 1500 cubic centimeters was withdrawn from the chest, and 4000 cubic centimeters from the abdomen cavity. In five weeks' time over thirty-seven quarts of fluid were removed from the abdomen, and nearly as much again oozed through a canula which was left in the situ. His urine was clear and normal at all times, and no parasites were found in the blood. Patient died in an asthenic condition five weeks after entering the hospital.

The autopsy was made eighteen hours after death. Both pleural sacs and the abdomen cavity were distended with chylous fluid.

The mediastinum was entirely filled with a tumor mass made up by a fusion of many gland-like tumors. The lungs presented signs of compression, and upon section several small glandular tumors were found in the right lung. The thyroid gland was somewhat enlarged, and was the seat of hyaline degeneration. The heart was small; valves and muscle normal. Spleen enlarged; upon section negative. Liver was the seat of chronic congestion. Pancreas, kidneys and adrenals were normal. The intestines showed no involvement of its lymphatic elements.

The mesentery was fused by a large tumor mass similar in character to that found in the mediastinum. Upon cut section all the tumor masses gave the homogeneous appearance of lympho-sarcoma, but stained sections showed the picture of a mixed-cell sarcoma containing many large irregularly-shaped cells and a few giant cells.

All of the veins in the left side of the neck were embedded in a tumor mass that compressed them to a marked extent. These were all carefully dissected, and the following interesting condition noted: The left innominate vein contained a well-organized thrombus firmly adherent and measuring three and one-half centimeters in length. The thrombus extended into the subclavian vein for two and one-half centimeters, and into the internal jugular for two centimeters up to its valve. The thoracic duct opened into the subclavian at the posterior and upper aspect at the junction of the innominate, but its opening was entirely obliterated by the thrombus. Below this point the duct was dilated in a circumscribed manner measuring two centimeters in length. The thoracic duct was dissected out into the abdomen, but, excepting a few beaded and slightly dilated portions, nothing abnormal was found. The thrombus in this case was undoubtedly the result of the pressure made by the large tumor mass, and the occlusion of the thoracic duct was simply a result of its pressure at this situation.

* * *

Chronic Hypertrophic Gastritis of Syphilitic Origin Associated with Hyperplastic Stenosis of the Pylorus. John C. Hemmeter, M.D., and Wm. Royal Stokes, M.D. *Welch Festschrift.*

This article first reviews the work of the earlier authors, Cruveilhier, Andrae, Brinton, and others. The literature presents three types of the disease. The first is called gastric cirrhosis, or the "limitis plastica" of Brinton, in which there is an increase of fibrous tissue, which, however, causes a decrease in the size of the organ; the second is called by the French writers the sclerosing gastritis, and shows a great increase in the thickness of the submucous coat, together with chronic interstitial changes in the other viscera; the third form is congenital hypertrophic pyloric stenosis.

There have been a number of clinical cases of gastric syphilis reported. Boas has described three cases of this disease beginning as a catarrh and ending in a pyloric stenosis, and Einhorn has re-

cently collected a number of cases of chronic gastritis which promptly responded to antiluetic treatment, and which he considered, therefore, as specific origin. Dieulafoy cites a case of round ulcer of the stomach which responded to potassium iodide, and Fournier mentions a young woman who had a severe gastric hemorrhage, which became quite well after antisyphilitic treatment. Other authors also agree in the opinion that gastric syphilis is not of rare occurrence.

A certain number of these cases have also been proven by pathological examination. Chian described a case of gummatous ulcer of the stomach; Bittner mentions three cases in which gummata were present in the walls of the stomach, and Stolper reported a case in which the submucosa was much thickened, and in which there was necrosis of the mucous membrane. Flexner's case showed a much contracted stomach, containing a large ulcer, with much thickening and cellular infiltration of the submucosa througout the entire organ. Necrotic foci and endarteritis of the blood-vessels were also made out. Buday mentions a case in which the tongue, mesenteric lymph glands, the kidneys, and the liver contained numerous gummata, and the stomach also contained several large gummatous ulcers. Fraenkel's case contained thirteen ulcers, and Obendorfer's case in a child four months old had gummatous ulcers of the stomach, and gummata of the liver and large and small intestines.

It will thus be seen from the past work on this subject that gastric syphilis is not at all rare, and many of the obscure dyspepsias and catarrhs may be placed in this category by the simple antiluetic therapeutic test.

The clinical history of the case reported by Hemmeter and Stokes is that of a man, aged twenty-four, who had a chancre two years before his gastric disease. This was followed by a cutaneous eruption, falling out of the hair, rheumatism, and glandular enlargement. Mercurial inunctions gave temporary relief. About one year before admission to the hospital the patient began to suffer from dyspepsia, followed by vomiting and pain after eating. Later on an attack of iritis developed. After admission to the hospital the tests showed absence of free and combined hydrochloric acid, as well as of pepsin and chymosin, and on attempting to distend the stomach by CO_2 the gas was expelled with great violence. No tumor was made out, and a diagnosis of benign stenosis was made. An operation was performed for the relief of this condition, but the patient gradually sank and died in three weeks.

At the autopsy the stomach was contracted to one-fifth of its natural size, and there was almost complete stenosis of the pylorus, the orifice admitting a probe the size of a leadpencil. Under the microscope the glandular character of the mucous membrane had almost entirely disappeared, its place being taken by a thick connective tissue rich in newly-formed connective tissue cells. The

submucous and muscular coats were also greatly thickened by a similar tissue, and this condition was most marked at the pylorus. These bands extended through the muscular coat as long, thick septa, separating the muscle bands from each other.

This case is of general pathological interest, because it shows that syphilis may affect the stomach in the same manner in which it changes other viscera. This change first consists in a death of the more highly organized parenchymal cells, and is followed by an increased production of interstitial or fibrous tissue in order to supply the deficiency. The changes in the stomach, therefore, were probably not due to the actual presence of the focal deposit which causes gummata, but were caused by the more diffuse material which brings about more general changes. These gastric changes would seem to have their prototype in the diffuse interstitial changes which take place in such conditions as arteriosclerosis, chronic interstitial nephritis, and tabes dorsalis, unless further work shows that they are always preceded by the actual presence of gummata.

[On page 261 of the current volume of MARYLAND MEDICAL JOURNAL will be found an illustration showing this stomach in full size.—ED.]

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SOME EXPERIMENTS UPON PLAGUE.

Metin (*Annales de l'Institut Pasteur*, September, 1900) reports an investigation concerning the infectiousness of the sputum of plague patients. He says that while primary plague pneumonia is comparatively rare, pulmonary complications are of common occurrence. The sputa of primary plague pneumonia and of secondary broncho-pneumonia, during the febrile stage, both contain the plague bacillus quite as virulent as the bacillus in the blood; fatal to rats in thirty-six to forty-eight hours, and to guinea-pigs in three or four days. Gotschlich recovered the plague bacilli from cases of pest pneumonia as late as the twentieth, thirty-third and forty-eighth day after complete defervescence.

Metin had the opportunity to observe eight convalescents from plague who had presented pulmonary complications. Two of them had primary plague pneumonia, the other six had broncho-pneumonia as a complication.

The sputa of these patients, given intraperitoneally, killed guinea-pigs in three to five days, and the Yersin bacillus was recovered in pure culture. The sputa were used for these injections, the author believing that the other organisms did not in any way affect the experiment. Pest bacillus in pure culture was always present in the fatal cases. If the pest bacillus was absent from the sputum the health of the animals was not disturbed.

The first guinea-pig received intraperitoneally 1 c. c. of the sputum of a pest patient on the day following the appearance of pulmonary complications. This guinea-pig died in four days, and the Yersin bacillus was recovered post-mortem.

A second guinea-pig was similarly inoculated on the sixteenth, and a third on the twentieth day after the same patient became free from fever. Of these animals the first was sick for three days, but recovered; the second remained well.

With the expectoration from the next patient four guinea-pigs were inoculated. The first, injected while the patient had fever, died in three days; the second, injected seven days after defervescence, died in five days, and the diagnosis of plague was fully confirmed post-mortem; the third and fourth animals, injected on the fourteenth and fortieth days, respectively, were not affected.

Experiments with the five other patients gave similar results, the earliest non-fatal sputum being obtained eight days after defervescence.

The authors conclude that the bacillus of Yersin still persists, and is virulent in the expectoration of pest patients until eight days after defervescence is complete, even though auscultation reveals no sign of pulmonary trouble. The virulence of the organism is, however, so far diminished that it requires five to seven days instead of three or four days to kill a guinea-pig. After the ninth day from complete defervescence the organism no longer kills the guinea-pig.

Ten days after complete defervescence, all physical signs of pulmonary trouble having disappeared, the sputa of pest convalescents may be considered harmless.

During the eight days when the sputum is yet fatal to guinea-pigs the author was never able to demonstrate the bacillus in the sputum by the microscope.

PLAGUE IN SAN FRANCISCO.

THE *London Lancet* of October 6 has an editorial on the above subject, which is in part as follows: "From the evidence before us there seems no doubt about the matter, and as many as fourteen authenticated cases of plague have occurred any time between the month of March and the month of August, 1900. It is needless to say that there have been the usual local squabbles as to diagnosis, and the medical men who have detected the disease, both clinically and bacteriologically, have been subjected to a great amount of the abuse which seems part and parcel of every plague outbreak. * * * Plague is regarded by every citizen as a possibility elsewhere, but not in his own particular city. In Bombay, in Calcutta, in Alexandria, in Oporto the same note of resentment has been struck, and in San Francisco the public press has declaimed against their 'healthful city' being so traduced. Let San Francisco be as healthful as its inhabitants declare, there is no gainsaying the fact that Chinatown is a blot on the sanitation of the city." The last case of plague reported in San Francisco (October 12) is later three months in time, but occurred in the same house which furnished a fatal case on July 5.

Book Reviews.

A Manual of Otology. By Gorham Bacon, A.M., M.D., Professor of Otology in Cornell University Medical College, New York. With an introductory chapter by Clarence J. Blake, M.D., Professor of Otology in the Harvard Medical School, Boston. Pp. 422; 12mo., with 114 engravings and three colored plates. Cloth, $2.25 net. Philadelphia and New York: Lea Bros. & Co.

It is with much pleasure that we greet the second edition of this excellent manual, and heartily recommend it to the profession.

For the undergraduate medical student and the general practitioner it is all that can be desired, and to them we especially commend it. To the graduate seeking special knowledge of the ear, and even to the expert otologist, it will prove a useful companion. Written essentially for the first class of readers, it will still be especially appreciated by the second, because almost every chapter bears the impress of the author's personality, and his opinions are marked by that conservative, scientific judgment so characteristic of the man.

The new edition is better than the first one in many respects. In the first place, the typography is improved by having each subdivision of a chapter headed by bold-faced type, thus rendering it very easy for the reader to find promptly just what he wants. Two full-page colored plates have been added, which will very materially assist the student to understand the subject-matter. The additions to the text are mainly of interest to the otologist, since they deal with surgical problems.

The introductory chapter, written by Dr. Blake, has been greatly enlarged, and will be found to be extremely interesting. It deals particularly with the teaching of otology and the relationship of the specialist to the general body of the profession. Dr. Blake's views, so ably expressed and so well sustained by argument, are worthy of the most marked consideration, and we believe will meet with general approval. The importance of his plea, that more careful attention shall be given to the general physical condition of patients complaining, perhaps solely, of ear troubles, is well exemplified in the few cases cited.

We wish space permitted us to call attention, in detail, to some of the good things contained in each chapter of this book. As it does not, we can only say, speaking of it as a whole, that it has our unqualified endorsement, and we hope it will be accorded a very wide circulation.

H. O. R.

Manual of the Diseases of the Eye. For Students and General Practitioners. By Charles H. May, M.D., Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Cornell University, New York. Pp. 400, with 243 original illustrations, including twelve colored figures. New York: Wm. Woods & Co.

An excellent book for students—one of the best we have ever seen. The entire field of ophthalmology is covered in a comprehensive manner, yet with a clearness and conciseness of statement that will strongly appeal to the reader.

The profuse illustrating of the book is one of its most admirable features, and will serve not only to make the context clear, but to impress the important points more firmly upon the student's mind. There is no better way of teaching a subject than by well-executed illustrations, and we congratulate Dr. May on his success in this direction particularly. We shall take pleasure in recommending the book to students.

H. O. R.

International Clinics. A Quarterly of Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and other topics of interest to students and practitioners by leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A.M., M.D. Volume II. Tenth series. Philadephia: J. B. Lippincott Company. 1900.

This book of 300 pages contains thirty-five articles, most of them brief and practical. We mention those which especially interested us: "Therapeutics of the New-Born Infant," by Ballantyne of Edinburgh, is a protest against the prevalent drugging of babies, and a plea for the careful prophylaxis of premature birth, and for due consideration of the fetus in cases of maternal syphilis, alcoholism, infectious or septic trouble, lead poisoning, or other toxic condition. The prophylaxis of defective and monstriparous gestation is also considered. Herbert E. J. Biss of London has an article on the treatment of diphtheria and its complications, and C. J. Aldrich of Cleveland one on caisson disease. J. C. Wilson of Philadelphia contributes an excellent clinical lecture on atypical enteric fever, and Hugh T. Patrick of Chicago one on locomotor ataxia, with special reference to its diagnosis. Charles Warrene Allen of New York has an interesting clinic on impetigo contagiosa and the syphilitic dermatoses of infancy.

These are only the articles which at once claim the attention of a single reader. The book as a whole is as good as its predecessors.

A Manual of Personal Hygiene. Edited by Walter L. Pyle, A.M., M.D. Illustrated. Philadelphia: W. B. Saunders & Co. 1900.

This very good book is intended for the lay reader, but it excels most books of its class, inasmuch as it successfully challenges professional criticism. It consists of seven chapters, each treating a special topic, and all written by thoroughly competent specialists—the digestive apparatus by Charles G. Stockton, the skin and its appendages by George Howard Fox, the vocal and respiratory apparatus by E. Fletcher Ingalls, the ear by B. Alexander Randall, the eye by Walter L. Pyle, the brain and nervous system by J. W. Courtney, physical exercise by L. M. Stewart. Except some remarks about tuberculosis and the parasitic affections of the skin, little is said about the hygiene of transmissible diseases. It was no doubt wise to make such an omission. The book is a first-rate one for the waiting-room table, and should find a good sale upon the recommendation of physicians.

MARYLAND MEDICAL JOURNAL.

JOHN S FULTON, M.D., *Editor.*

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BALTIMORE, NOVEMBER, 1900.

THE RECENT MOSQUITO EXPERIMENTS.

THE same reasons which moved Dr. Patrick Manson to make a crucial experiment upon his son have induced us to reprint Manson's article from the *British Medical Journal.* The "dramatic" quality of the test will influence those who have not hitherto accepted the new old theory that malaria is conveyed to man by mosquitoes. The practical application of this doctrine to the prevention of malarial infections has already waited long upon the unbelief of medical men, and must wait longer for the confidence of the general public.

The part played by young Mr. Manson in this experiment will bear critical scrutiny. He knew that he was to get a Roman malaria, and that dangerous forms of malaria prevail about Rome. He trusted Brignami and Bastianelli to send mosquitoes infected with the mild type of parasite which is not easily found at Rome in summer. When in due course he became ill he took no remedy until the parasites appeared in great number, and had been satisfactorily demonstrated.

What seems most commendable in this is perhaps the manifest pluck and devotion, but the impressive phase of the experiment is the confidence of the subject and his three co-workers that the experiment would progress precisely as it was planned.

It did, in fact, work out without a hitch in Mr. Manson's case, and also in that of Mr. George Warren, another volunteer in the same experiment. Mr. Warren's infection was derived from the third consignment of mosquitoes. He was bitten more freely, got a benign tertian infection, and had more parasites in his blood.

In the British colony at Rome there is greater risk that the experiments may fail, since these persons have undertaken to avoid the bites of mosquitoes, and so to escape the malaria which is probably more prevalent in that spot than elsewhere in all Europe. The demonstration would not fail, however, if one of these four persons should get a malarial infection, since it is not likely that an unnoticed bite of anopheles will occur.

This experiment concludes as this issue appears, on November 1, and the details will doubtless be published at any early date.

A much larger experiment has been carried on at three railway stations in a very malarial area under the supervision of Grassi. The railway employes at these places are living according to Grassi's rules. Among the

104 persons thus protected are thirty-three children under ten years of age. The experiment began on March 23 by treating all the cases of recurrent malarial fever. This was ended on June 25. Meanwhile mosquitoes were examined, and the first infected anopheles was found on June 14. This fixed the date of opening of the malarial season at June 26, and on that date the first fresh human infection was observed outside the experimental area. From the 26th of June on the protected people were required to retire, if possible, to their anopheles-proof sleeping apartments from sunset to sunrise. Those who have outdoor work wear veils and cotton gloves. Everybody is seen twice a day by a physician, and the least illness is noted. The use of quinine, except under medical advice, is forbidden, and during the season but sixteen grammes have been given to those who still showed traces of infection at the beginning of the malarial season.

Up to September 16, the date of Grassi's report, none of these 104 persons had had malaria. There were a few anopheles bites, but the proportion of infected anopheles, Grassi says, is only 1 in 100. Culex was able to get into the sleeping apartments, and, of course, bit freely. Among 300 unprotected persons living on either side of the experimental area but five escaped infection, though these 300 persons consumed three kilogrammes of quinine.

These experiments test equally the theory of the propagation of malaria, and the practical utility of preventive measures, and should therefore at once engage the attention of working sanitarians and of the general public.

ONE RESULT OF DISCHARGING SEWAGE INTO SALT WATER.

A RECENT paper by Dr. E. A. Letts and Mr. John Hawthorne of Belfast (*Lancet*, September 22) contains information which has perhaps some bearing upon the choice of a method of sewage disposal for Baltimore. The title of the paper is "Ulva Latissima and Its Relations to the Pollution of Sea Water by Sewage."

Ulva Latissima, or "sea lettuce," has a remarkable affinity for nitrogen. Theoretically it should therefore be a very useful scavenger plant. It is found, however, to grow in sewage-polluted sea water so rapidly as to become itself a nuisance. In Belfast Lough, polluted by the sewage of the city, are vast quantities of this weed, and in warm weather these deposits, many feet thick and miles long, putrefy, setting free such amounts of sulphuretted hydrogen that real estate values have been seriously injured in a wide district. This nuisance became a factor in local politics, in so much that the Belfast corporation, in order to get their last bill passed, were obliged to insert a clause binding themselves to purify their sewage before discharging it into the lough.

Strangford Lough, near by and in all respects similar to Belfast Lough, except that it is not polluted by sewage, does not grow the "sea lettuce." In the northern part of Dublin bay, where the sewage pollution is extensive, there is a seaweed nuisance, while in the southern part of the bay the

ulva is not abundant, except in the vicinity of a large sewer outfall near Kingston.

The authors made careful laboratory studies of the growth of this plant in sea water variously modified, and also of its peculiarly offensive sort of decay. They conclude that the primary cause of the seaweed nuisance is sewage.

In favor of the "dilution project" for Baltimore it has been said that the discharge of crude sewage into Chesapeake bay would lead primarily to a great local increase of scavenger plants and animals; that these, in turn, would attract and support successively higher forms of life, leading ultimately to a material increase in the food resources of the bay.

That the primary increase of plant life about the sewage outfall might reach the proportions of a great nuisance has not hitherto been suggested.

THE FACULTY AND THE COUNTY SOCIETIES.

The autumn meeting of the Medical and Chirurgical Faculty of Maryland is to be held at Towson, under the auspices of the Baltimore County Medical Association, one of the most flourishing local societies in the State. The members of the Faculty should remind themselves, in this connection, of the fruitful labors of Dr. Charles M. Ellis as president of the Faculty in 1897. He planned and set on foot a movement for the organization of county medical societies. There were at that time but four medical societies in the State outside of Baltimore. A single trial of Dr. Ellis's project resulted in the formation of eighteen new county medical societies. There are now at least eight healthy local societies, and as many more which meet more or less regularly. In but two of the counties no organization resulted.

It can fairly be said that great success attended this work, and that complete organization of the profession in Maryland could certainly have been effected by repeating the effort once a year down to the present time.

If the welfare of the Faculty was materially enhanced by the measure of success attained (as none can doubt), what might the profession in this State not gain by a revival of this enterprise and its systematic prosecution year after year?

Of all the obstacles to local organization indifference on the part of practitioners in the counties is the least. The chief hindrances are considerations of time, distance and paucity, and these will disappear if the advantages of a real vital union binding the profession of the whole State are brought within the view of the rural physician.

There was, and there is now, no dearth of men in the Faculty who are willing and able to do the necessary missionary work, and there will be no lack of welcome in any part of the State. Much as the Faculty might expect to profit by improved local organization, greater gains are offered to the scattered members of the profession in the counties.

The benefits of local organization are nowhere more apparent than in the Baltimore County Medical Association, and that society is quite strong enough to help in carrying the work of organization into other counties.

Medical Items.

Dr. George W. Dobbin was married on October 10 to Miss Beatrice Dunderdale of Perth Amboy, N. J.

A Baltimore ophthalmologist has been sued for malpractice. Damages to the extent of $10,000 are claimed.

The Episcopal Hospital in Philadelphia receives an estate of $50,000 by the will of Charles Edward Orme.

Another case of plague is officially reported in San Francisco. It was found in the house which furnished a case which died at the City Hospital on July 5.

After a fraternity dinner at a Chicago dental school a number of students were taken ill, some of them quite seriously. Canned salmon is believed to have been the cause.

The effect of the miners' strike in the anthracite regions has become noticeable in the atmosphere of New York and Boston. In the latter city seven persons were arrested in one day for burning bituminous coal.

A Brooklyn physician recently nearly lost his life in an attempt to save his diploma from his burning house. He was overcome by smoke, and was dragged out unconscious. The diploma was found where he had fallen.

Ferdinand Dahn is in Flushing Hospital, L. I., as the result of a fit of sneezing. He sneezed for twelve hours, and burst a blood-vessel in one of his ears, when the sneezing ceased. His life was nearly lost from hemorrhage.

Mr. Quick, engineer of the Baltimore city water department, is having the watershed carefully watched. He is keeping track of the cases of typhoid fever on the streams, and making particular inquiry at each infected house as to the disposition made of excreta.

The Clinical Society of Maryland began its season October 19. Dr. Osler gave an account of the recent centennial celebration of the Royal College of Surgeons of England, after which there was a "smoker." The following officers were elected: President, Dr. Wm. J. Todd; vice-president, Dr. Henry Barton Jacobs; recording secretary, Dr. H. O. Reik; corresponding secretary, Dr. Nathan Herman; treasurer, Dr. J. F. Crouch.

A neighborhood improvement association has been organized by the women of Govanstown. One of their first undertakings was to go before the county board of health to urge the establishment of systematic collection of garbage and night soil under the supervision of a local medical officer of health.

The very wide-awake editor of the *Philadelphia Medical Journal*, visiting a "spice factory," observed that "hundreds of tons of marble chippings were being pulverized and used in the manufacture of all sorts of ground spices." Floor sweepings of such factories, he learned, were regular articles of commerce.

It is said that the Upper House in the Spanish Cortes has passed a bill legalizing cremation, and that the measure will probably pass the Lower House. The prohibition has hitherto been due to the influence of the Church. Since opposition to cremation is not a point of doctrine in the Catholic Church, ecclesiastical influence may at length be withdrawn.

At the annual meeting of the Maryland Laryngological Association on the evening of October 10 the following officers were elected for the ensuing year: President, Dr. Samuel K. Merrick; vice-president, Dr. Jacob H. Hartman; treasurer, Dr. John R. Winslow; secretary, Dr. Hughlett Hardcastle. The council consists of the above-named officers, together with Dr. Samuel Johnston and Dr. John N. Mackenzie.

The late Dr. J. M. Da Costa in his will bequeathed $5000 to endow a bed in the Pennsylvania Hospital; $5000 to endow a bed in the Children's Hospital in memory of his son, John M. Da Costa; $5000 to the College of Physicians for publication fund; $5000 to the professors' retiring fund of the University of Pennsylvania. His museum is left to the Jefferson Medical College, and his library to the College of Physicians of Philadelphia.

Chicago produces vast quantities of raw meat and other raw things. The rarest is a Raw Food Society, which declares "that man could live much longer in proportion to the number of years required for development by eating raw food; ill-health would be the exception rather than the rule, and pestilence and contagious diseases would be wiped from the land. We believe that children reared on uncooked foods will become giants physically and intellectually."

Dr. Harry Lee Smith has been appointed associate professor of diseases of children in the Woman's Medical College of Baltimore.

The semi-annual meeting of the Medical and Chirurgical Faculty of Maryland will be held in Towson, beginning Tuesday, November 20. The Baltimore County Medical Association will entertain the members of the Faculty at a luncheon on that day.

The meeting of the Pan-American Medical Congress will be held in Havana on December 26, 27, 28 and 29, 1900. The executive committee consists of Dr. Juan Santos Fernandez, president; Dr. Gustave Lopez, vice-president; Dr. Enrique Acosta, treasurer; Dr. Vicente B. Valdes, Dr. Jose I. Torralbas, Dr. Eduardo F. Pla, and Tomas V. Coronado, secretary. The sections of the congress will be the following: 1 Medicine; 2. General Surgery; 3. Military Medicine and Surgery; 4. Obstetrics; 5. Gynecology and Abdominal Surgery; 6. Therapeutics; 7. Anatomy; 8. Physiology; 9. Pediatrics; 10. Pathology; 11. Ophthalmology; 12. Laryngology and Rhinology; 13. Otology; 14. Dermatology and Syphilography; 15. General Hygiene and Demography; 16. Marine Hygiene and Quarantine; 17. Orthopedic Surgery; 18. Mental and Nervous Diseases; 19. Dental and Buccal Surgery; 20. Medical Jurisprudence; 21. Medical Pedagogy; 22. Railway Surgery. The following will be considered the constituent countries of the Pan-American Medical Congress: The Danish, French, Dutch and English Antilles (West Indies), Cuba, Porto Rico, Argentine Republic, Bolivia, Brazil, Canada, Chili, Columbia, Costa Rica, San Domingo, Ecuador, United States, Guatemala, Hayti, Hawaii, Honduras, Mexico, Nicaragua, Paraguay, Peru, San Salvador, Uruguay and Venezuela. The address of the secretary is Dr. Tomas V. Coronado, Secretario de la Commission Ejecutiva del Tercer Congreso Medico Pan-Americana, Prado 105, Habana, Cuba.

The *Medical News* reprints the following from the *New York Times* concerning Koch's investigations on malaria: "As might have been expected from the previous course of Dr. Robert Koch, there is not a word in the announcement of his successful investigation of the cause and cure of malaria to indicate that he is not alone in this field of study, or to hint that he has simply been following a line carefully marked out long ago by other scientists and since developed by them with an industry and ability at least equal to his own. This is not to say that the Berlin bacteriologist is neither industrious nor able; he is both in a high degree; but his reputation—out of Germany, at any rate—is that of a man not less business-like than scientific, and he has been charged before now with a somewhat unprofessional tendency to monopolize glory and profits in a way not quite compatible with delicacy of sentiment. His recent labors in China have apparently brought nearer to the point of actual demonstration the theory that malaria and mosquitoes are closely related; but that is not his theory, except by adoption, and he might well say more than he does about the English surgeon stationed in India who originated it, and about the men of the same and other nationalities who have done so much to lend it credibility. The omission, however, is of no great consequence. If malaria can be prevented or cured it makes little difference by whom it is done, and little, in a practical way, whether or not the incidental glory is justly distributed. Success means the multiplication by two or three of the portion of the globe on which civilized men can live, and it will do more than any other one thing to lighten the task of carrying law and order through the region bounded by the two tropics."

In his recent "Shattuck" lecture Dr. Welch speaks with fine sarcasm to the same point, though without reference to Koch: "Of the subsequent records, the most numerous and valuable have appeared in this country, although they appear to be little known to European writers. Thus, v. Hibler * * * is entirely ignorant of our work and that of other American investigators on B. aerogenes capsulatus. The information of Hitschman and Lindenthal on the American work is second-hand, and both incomplete and inaccurate. * * * Knowledge of B. aerogenes capsulatus * * * has begun to appear in France in the last two years, but without evidence of acquaintance with American publications. Even allowing for the great difficulties in keeping pace with the literature of any subject in medicine, a decade would seem sufficient for the light to penetrate even into dark places."

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THE IMPORTANCE OF INSTRUCTION IN MEDICAL SCHOOLS UPON THE MODIFICATION OF MILK FOR PRESCRIPTION FEEDING.

By Andrew H. Whitridge, M.D.,
Baltimore, Md.

During the course of instruction in any modern medical school students have the opportunity to study more or less practically the relation of bacteriology to pathology. Students in the second and third years of the course gain enough laboratory experience of the more important species of bacteria to enable them to make a diagnosis of infected tissues given for examination. As students approach matriculation a very distinct and imperative impression has been created of the *rôle* played by bacteria, both in health and disease, and of the methods employed to deal with those that are regarded as pathogenic in their action. Asepsis and antisepsis are familiar both in theory and in practice not only in relation to surgery, but also in the proper estimation of the etiology and treatment of disease, whether regarded as strictly communicable or not.

The progress of bacteriology has been very rapid, starting, indeed, in the realm of surgery, where it has seized the operative field as its own, yet scarcely less dominant in the domain of medicine, and perhaps most authoritative in the comparatively unobtrusive region of preventive medicine. All this rapid accumulation of ascertained facts, and the brilliant application of them to practice, deeply impresses the mind of the graduating student and equips him with a zeal according to knowledge unknown to his professional brethren of an olden time. The young practitioner feels that he starts out with a large measure of wisdom, which is knowledge put to use, especially when he is called upon to combat those diseases in which his academic study of bacteriology and his practical work in the laboratory of the medical school afford him both a correct diagnosis and an adequate treatment. He feels somewhat at home, even in the company of older men, when he

has to deal with the problems to which bacteriology holds the key.

But it is far otherwise when he is called upon to decide many of the common questions and to dictate daily procedures of general practice. The art of preventive medicine, as applied to the life of the family, is often a puzzling and unsatisfactory practice. Yet it ought to be one of the chief sources of satisfaction in medical practice. The intelligent laity is calling for the advice and co-operation of the profession in thousands of ways outside of treatment for actual sickness or injury. The care of the body in health is as paramount a consideration with intelligent patients as is its cure in time of sickness.

Questions of sanitation, the practical hygiene of the kitchen, bed and bath rooms, and especially of the nursery, dietaries for the man of active business or of sedentary habits, for the school children, for the aged, and especially for the mother and her baby, are now questions for solution by the family physician, and may soon be problems for specialists in this department. These great matters should form an important part of the curriculum of the modern medical school, yet they do not. Those physicians who are now eminent for their work in preventive medicine and hygiene are those who have studied these subjects since graduation, and, with some exceptions, for whom their medical-school education did very little to equip them to follow a natural bent in these directions. Let this question be illustrated by one example taken from the many that might be cited, viz., the most important and pressing question of infant feeding.

During the past fifteen years we have witnessed a great change pass over this question, both in the minds of the laity and in those of the members of our profession. We have seen a few aspects of this question change from hazy uncertainty into a phase of enlightenment. This change has always been as remarkable as it is encouraging to the profession. For example, it is conceded that the feeding of infants should be wholly under the control of the physician. Just as the midwife has been superseded by the obstetrician, the ignorant nurse or untrained mother must be superseded by the trained and qualified physician. This position is held by the intelligent layman quite as firmly as it ought to be held by the educated physician. That it is very frequently more firmly maintained by the patient than by the physician is largely due to those medical schools which have neglected to prepare the physician for this important and remunerative work. A large part of the mortality of infancy is traceable to the very slight importance given to the subject of scientific feeding in the schools.

It is also conceded that in the absence of the proper breast milk some modification of animal milk should be employed as a substitute, and that cow's milk should form the basis of all scientific infant feeding. From this position there is now no deviation. Specialists differ as to the forms of modification, as to percentages

and proportions, as to diluents and other matters of detail. But none differ from the general proposition stated above. But scientific substitute feeding requires an intimate knowledge of milk—of breast milk as the primary example, and of modified cow's milk as the practical copy. It is not the fault of the average physician that this subject is to him very often a *terra incognita*. It is mostly the failure of the medical school to lay the suitable foundation for the experimental knowledge.

It is conceded that the modification of milk for infant feeding is a very simple thing of itself, yet it is often regarded as a mystery and a scare in medical practice. The schools might make its complete study one of the simplest as well as one of the surest means of practical education.

In our medical schools of the South there are no means by which the student or the post-graduate physician can obtain the training necessary to enable him to conduct thoroughly scientific infant or invalid feeding. Students in some of our Northern schools of medicine have opportunities to become more or less familiar with this branch of medicine, but in the South they have no such opportunities. These should be supplied, and I here make an earnest appeal that medical schools in the South obtain qualified men, who will devote their time and energy to the teaching of this great subject.

Since summer diarrhea is such a factor in our mortality, I suggest that, at least during the summer months, such of our schools as maintain a high standard of education should appoint qualified men who shall instruct, by regular weekly lectures, students and graduate physicians in the practical knowledge needed to understand this branch of our work. It would be an inestimable gain to earnest men to have such knowledge of the cow, her milk, its care, and the bacteriological relation of such matters to the employment of milk for infant feeding imparted by a competent instructor. If such a chair were founded, and a proper man found to fill it, we should realize that advance had been made in pediatrics.

The milk laboratories that have been established in many cities of the United States have done much to further the scientific feeding of infants. Those physicians who employ these laboratories speak most strongly of the results obtained. My own experience in the use of milk, modified according to my prescriptions at the laboratories, has been so satisfactory that I cannot praise this method too highly, and I should like to see a milk laboratory within the reach of all physicians who have infants to feed artificially. This, however, is impossible, and at best only a percentage of physicians can reach the laboratories with their prescriptions. But all physicians intending to devote themselves either to general medicine or to the special work of pediatrics should be permitted and encouraged to lay a solid foundation for this work while they are in the medical school.

A CASE OF ACROMEGALY IN A NEGRO ASSOCIATED WITH A LOW GRADE OF GIANTISM.

By J. Hall Pleasants, M.D.,
Baltimore, Md.

EXHIBITED BEFORE THE CLINICAL SOCIETY OF MARYLAND, NOVEMBER 2, 1900.

FIG. 1.—PHOTOGRAPH OF THE CASE OF ACROMEGALY BESIDE A NORMAL NEGRO 5 FT. 8 IN. IN HEIGHT.

I WISH to bring before you a case of acromegaly occurring in a negro considerably above the average in stature, which presents several interesting features, and which deviates in many particulars from what is generally considered a typical example of the disease. A consideration of these features brings us face to face

with the problem of the relation of acromegaly and giantism, and also raises the question of the pathogenesis of both these conditions. The occurrence of acromegaly in a negro is also a point of interest.

The history of the case, as far as I am able to obtain one, owing to the mental condition of the patient, is as follows:

Case of Pilton Howard of Soldiers' Delight, Md.; age unknown; negro; laborer; single. Admitted to the Baltimore City Hospital May 16, 1900, on the service of Dr. Chambers, suffering from fracture of the right tibia. The family history is practically unknown, but the patient asserts that he has a sister as large as himself. No definite personal history is obtainable, as he remembers but little of his past. There is no history of any acute illness. There is no evidence of syphilis. He has never used alcohol or tobacco. In regard to his present condition, he does not remember when his face, hands and feet first became affected, but thinks that they have always been about as large as they are now. He has never worn footgear of any kind, as he could not secure shoes of sufficient size. His general health has always been good. He has never been considered especially strong as far as muscular power is concerned, nor has there been any recent change in this respect. Almost none of the symptoms of acromegaly have been present. There has been no sweating, headache, pains in hands or feet, hyperesthesia, polydipsia, polyphagia or epistaxis. There have been no urinary symptoms. The patient asserts that he has never had sexual power or desire. For several years he has worked as a farm laborer. He has never attended school. He is left-handed.

Physical Examination.—The patient is apparently a full-blooded negro. We have here a grade of intelligence corresponding to that of an imbecile of the higher type. He answers questions fairly well, and seems to have a fair memory for recent events. The ward attendants say that his general behavior and disposition are childlike. His age is difficult to estimate. He is probably between twenty-five and thirty-five years old. His height is six feet two inches (187.5 cm.), but his true height is at least an inch more than this, when we take into consideration the marked stoop. He weighs 198 pounds. The attitude is peculiar—the head bent forward on the chest. His expression lacks intelligence. The shape of the face is peculiar, but is not the classical picture of acromegaly—ovoid, with the large end down. The lower part of the face is prominent, due to the size of both jaws, but the lower jaw does not project forward beyond the upper. Both maxillary bones are distinctly enlarged, especially when seen from the front. The cephalic index is 72.5, just bringing the skull in the dolichocephalic class. The circumference of the head (59 cm.) is within normal limits, although when compared with the remainder of the head the brain cavity looks small. The malar bones are enlarged and prominent. The upper lip projects about .5 cm. beyond the lower. The lips are not especially thick. The alveolar processes of both jaws are enlarged, projecting and irregular, the upper extending .5 cm. beyond the lower. The spaces between the teeth are widened, although this is probably largely due to actual loss of teeth. The tongue is not enlarged. The palate and uvula are normal. The ears are rather large, but do not seem thickened; the lobe is not well developed. The nose is no larger than is often seen in the race. The eyes are somewhat close

together. There is no exophthalmos, strabismus or bitemporal hemianopsia. The pupils react to light and accommodation, and are equal. The patient will not permit an ophthalmoscopic examination of the eyegrounds. There is no thickening of the eyelids. The eyebrows are heavy and prominent, due to an enormous enlargement of the superciliary ridges

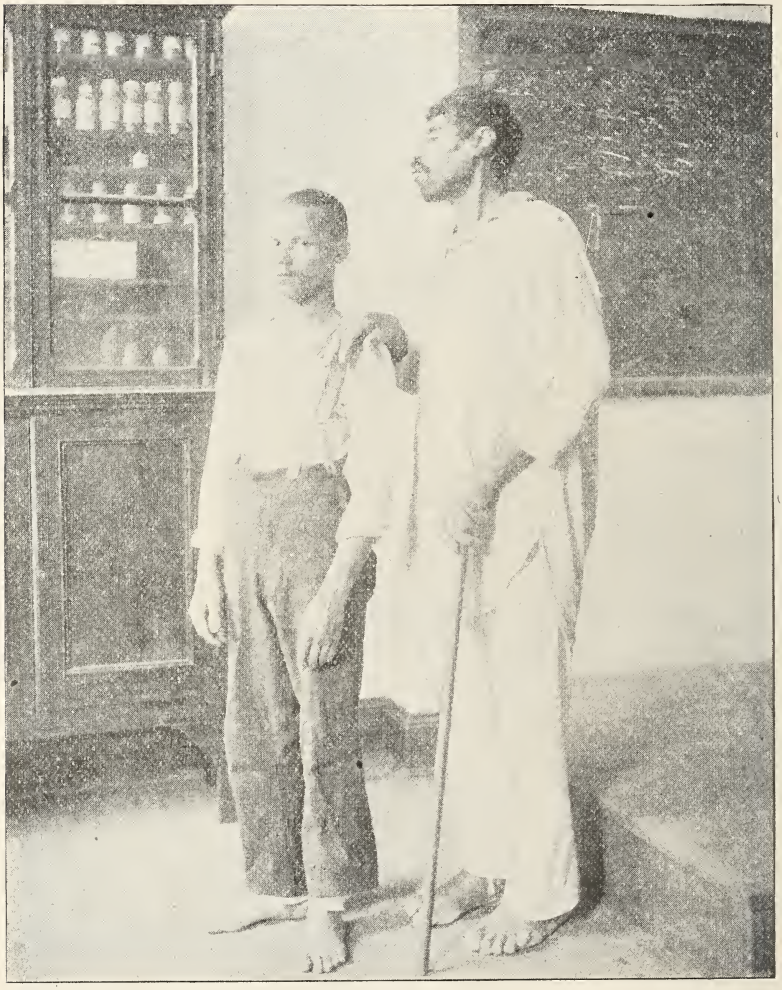
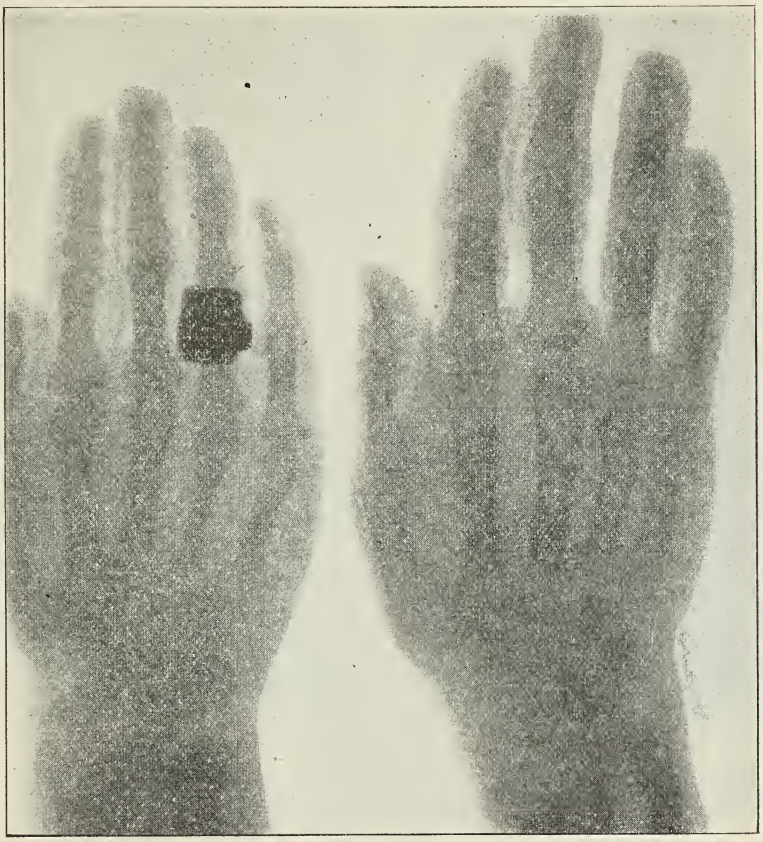


FIG. 2.—PHOTOGRAPH OF THE CASE OF ACROMEGALY BESIDE A NORMAL NEGRO 5 FT. 8 IN. IN HEIGHT.

of the frontal bones, the external angular processes showing especially marked hypertrophy. There is no thickening of the skin and subcutaneous tissues over the face and neck, but on the cheeks the skin hangs in folds, suggesting atrophy of the subcutaneous fat. The thyroid is apparently atrophied, no suggestion of the gland being made out on palpation.

are symmetrically enlarged in all directions, in length as well as transversely. They do not present any of the features of the so-called "*spade-like*" type of hand seen in classical acromegaly, there being a marked lengthening of the bones of the fingers and hand, while the fingers are decreased rather than increased in thickness in proportion to their length. There is no suggestion of the "*bulbous*" type of fingers found in Marie's *hypertrophic pulmonary osteo-arthropathy*, but rather a flattening of the

The hands and feet are enlarged, the former enormously. The hands



A B

FIG. 3.—RADIOGRAPH OF THE LEFT HAND OF A NORMAL INDIVIDUAL OF SAME HEIGHT (A) BESIDE THAT OF THE PATIENT WITH ACROMEGALY (B).

fingers. There is no thickening of the skin of the hands, and no increase in the natural folds of the palms. The nails are well shaped, and of a size proportional to the fingers. They show no curving. There is considerable wasting of the muscles of the thumb and of the lumbricales and interossei. The wrists present no peculiarities. The forearms are much lengthened.

The feet are enormously enlarged, the left foot, which is slightly the longer, measuring twelve and one-half inches (31.5 cm.) in length by twelve and three-quarter inches (32.5 cm.) in circumference around the ball of the foot. The toes are very long, and, unlike the fingers, are more than proportionally increased in their transverse diameters. The great toes are enormous. Here we see a great increase in the thickness of the skin and subcutaneous tissues not found in the hands. The fact that the patient has always gone barefooted is doubtless a factor in this increase. The toe nails are in proportion to the size of the feet. There is no marked curving. A study of the radiographs brings out several interesting points. In the hands and feet, while there is a general enlargement of all the bones in both the long and transverse diameters, involving the shafts and epiphyses this enlargement is much more pronounced in the epiphyses,

A B

FIG. 4.—RADIOGRAPH OF THE LEFT FOOT OF THE PATIENT WITH ACROMEGALY (A) BESIDE THE RIGHT FOOT OF A NORMAL INDIVIDUAL OF SAME HEIGHT (B).

especially of the terminal phalanges, where we find a marked "tufting" as compared with the normal hand and foot. The enormous size of the great toe is largely due to this "tufting," but there is also an increase in the transverse diameter of the shaft. The radiographs also show the relation between the soft parts and bone. An actual atrophy of the soft parts of the hand is to be seen.

The thorax is somewhat sunken. There is no special enlargement of the clavicles. but the bony framework of the upper part of the chest is massive. Both breasts are enlarged, and the nipples are prominent. There is no increased dullness over the sternum indicating an enlarged thymus. In the

cervical region there is a marked kyphosis of the spine, reducing the actual height by at least an inch and giving the peculiar stoop often seen in acromegaly. The spinous processes of the cervical vertebrae are thickened and enlarged. There is a slight degree of scoliosis. The heart, lungs and abdomen are negative. The spleen cannot be felt. The muscles everywhere are flabby and badly developed. There is no general glandular enlargement. The genitalia show an enlargement of the penis. The testicles appear rather smaller than normal, but do not show distinct atrophy. The deep reflexes are somewhat exaggerated. The urine shows no sugar, and is otherwise negative.

I regret that the photographs (Figs. 1 and 2) of the patient are not more satisfactory. The perspective is bad, somewhat exaggerating the actual enlargement of the hands and feet, while the presence of clothes conceals some of the most interesting points of the case. It has been found impossible to obtain additional photographs in time for publication, so these are presented, with an apology for their defects.

In the study of this case one of the most interesting features is the race of the patient. I have been able to collect three instances from the literature of the occurrence of acromegaly in the negro. The first case reported was that of Berkley[1] of Baltimore in 1891. His case was that of a negro woman, an inmate of the City Asylum. Beaver Rake,[2] in 1893, reported a case in a negro boy of ten years of age. J. A. Valdes,[3] in 1897, described a third case in a boy of fourteen. It is rather remarkable that the disease in two of these instances should have developed at an early age, as acromegaly very rarely appears until adult life. Dr. Thayer informs me that a negro woman, showing the typical features of the disease, presented herself at the Dispensary of the Johns Hopkins Hospital a few years ago, but was frightened off by the interest which her case aroused before a satisfactory examination could be made. Dr. Osler also states that he has observed on the street in Baltimore a negro woman suffering from this disease. This may possibly be the same case seen by Dr. Thayer. The case which I now report is thus the fifth, or possibly the sixth, case of which I have knowledge. Three, and possibly four, cases have been observed in Baltimore. There is no reason to believe that acromegaly is uncommon among negroes. More careful observation in regions where the negroes form any considerable proportion of the population will doubtless bring new cases to light, the disease as yet seeming to have attracted but little attention in the South, there being comparatively few cases, even among whites, reported from that part of the country.

This case presents additional features of even more general interest, namely, the possible association here of acromegaly and giantism. To appreciate this it is necessary to say a few words upon the general subject of acromegaly and giantism.* In re-

*For an excellent review of subject of the relation between acromegaly and giantism, and the theories regarding their etiology, the reader is referred to an article by Leopold-Levi in the *Arch Gen. de Med.*, *1896*, p. 579.

gard to acromegaly, it will be impossible to even enumerate the several theories which have been advanced to explain the pathogenesis of the disease. The only one which seems to be based upon clincal observation is the *pituitary theory* of Marie, who, in 1885, first described and named the disease, although Lange a few years before had called attention to some of the features which certain cases of acromegaly present. Marie's theory assumes that the pituitary body has an internal secretion, which in some way regulates the processes of osteogenesis. When the functions of this gland are disturbed by changes in the gland itself—changes which usually show themselves in hypertrophy—there is a disturbance in the equilibrium of bone nutrition, which manifests itself in changes in the shape of the bones themselves. According to this theory we have to deal with a disease of an etiological character similar to myxedema, in which we have a definite set of nutritional changes produced by the failure of the thyroid to properly functionate. In a recent review of the whole subject Hutchinson[1] states that in forty-four out of forty-eight cases of acromegaly which have come to autopsy there were definite changes found in the pituitary gland, and he believes that the reported cases in which such changes were not found are open to question. Mannesco somewhat modifies Marie's theory in believing that the thyroid and pituitary are both necessary in controlling the osteogenic processes, and that a failure of these glands to properly interact produces disturbances in bone nutrition.

The occurrence of acromegalic characteristics in a certain number of abnormally tall individuals has been frequently observed, suggesting a possible relation between these two conditions. Two views are held as to the connection between acromegaly and giantism:

(1) The theory which maintains the unity of the two conditions, viz., that they are both manifestations of the same process. This view, clearly expressed by Mussalongo in 1892, is also warmly supported by Brissaud and Niegl.

(2) The opposing theory, which is held by Marie and Sternberg, that the two conditions are separate and distinct.

According to the first theory, that of the unicists, the two conditions are produced and controlled by the same cause, the results being dependent upon the time of life when this cause comes into play. If in adolescence the result is giantism; if in adult life acromegaly is produced. If the disease begin in early life and extends into later life a combination of the two conditions results. The changes which we see in acromegaly proper are those brought about in the skeleton after development of the bones lengthwise is restricted by the firm connection established between the diaphysis and epiphysis in later life. The occasional occurrence of definite acromegalic characteristics in children would be thus dependent upon individual peculiarities in this respect—a special tendency for the face and extremities to respond to pituitary disturbances or possibly an early union between epiphysis and shaft preventing a more general skeletal response.

Marie, on the other hand, in support of the dualistic view, declares that the majority of acromegalics are not giants, and that a large number of giants show no evidence of acromegaly. He also declares that in true giantism the limbs and face preserve their normal relation, while in acromegaly the age at which these changes begin and their well-defined sequence of development point to this disease as a definite entity. Marie is forced to acknowledge that in a certain number of cases acromegaly and giantism coexist. He therefore divides giants into two classes—(1) true giants, or mere exaggeration of normal development; (2) giantism which results from pre-existing disturbance, such as hereditary syphilis or acromegaly, thus recognizing acromegaly as merely a *factor* in the development of certain forms of giantism.

From the evidence presented by both sides it seems most probable that there is a close relation between acromegaly and a large number of cases of giantism, and that Brissaud's theory of the influence of age in determining the character of the deformity is most suggestive and supported by some clinical evidence. That there may be cases of giantism due to totally different causes, such as mere exaggeration of normal growth, is not denied by the acceptance of this view. Hutchinson has recently studied a large number of cases of giantism, and finds that in a considerable proportion there has been post-mortem evidence of an enlarged pituitary. In reading over his cases attention is drawn to the fact that a large number of giants show a low order of vital resistance and die at a comparatively early age. May not a possible explanation of the fact that comparatively few giants show the marked facial and other comparatively late manifestation of typical acromegaly be due to the death of these freaks before sufficient time has elapsed for these facial and extremity changes to be superadded to the earlier and more general skeletal changes of giantism?

Let us now look at the patient from a broader standpoint. His height is sufficient to class him as a low-grade giant. We do not see here by any means a typical acromegalic. His intellect is of a low order, suggesting congenital defects or cerebral changes occurring early in life. Such a mental condition is much commoner in giantism than in typical acromegaly. Nor have there been any of the typical subjective symptoms, such as headache, pain in the limbs, etc., generally seen in acromegaly. On the other hand the stooping attitude is typical of acromegaly. The atrophy of the thyroid is also common in acromegaly. The hands require special notice. Marie, although a pronounced dualist, has been forced to recognize two types of deformity of the hands in acromegaly—(1) the "spade-like" shape seen in typical cases of acromegaly, in which there is a transverse thickening of the bones and soft parts, especially of the latter, without increase in the length of the bones; (2) the giant or long type of acromegalic hands, in which we find a great increase in the size of the bones of the hands, both in the long and transverse diameter, especially in the former. In this type there is no hypertrophy of the soft parts, the natural lines of

the palms are not altered, and there is generally a definite atrophy of the hand muscles. The hands of this patient fall into this second class, for we have here hands increased proportionally in both directions, while there is a marked wasting of certain muscles. The feet are enormous—much larger and heavier proportionally than the hands. The toes are large and massive. The thickening here is due to changes both in the soft parts and in the bones. In both the hands and feet the radiographs show the typical epiphyseal "tufting" of acromegaly associated with a general enlargement of the shafts. Unlike most cases of acromegaly, the feet here show greater changes than the hands. The face does not show the typical deformity with a projecting lower jaw, although there is a distinct enlargement of the facial bones, more especially the superior maxillary, the alveolar processes and the supraorbital ridges. There is lacking here the marked coarseness of certain features so often seen, especially in the nose, ears and eyelids, and also the thickening of the skin of the face and neck. It would be most interesting to know if this last set of changes has at any time been present in this case, for it would seem possible that if for any reason the cause producing acromegaly were to cease to act, there might be improvement in the condition of the soft parts, while the bone changes would persist. The absence of subjective symptoms here at the present time renders it possible that there may be a permanent or temporary arrest of the process, although it is conceivable that these symptoms may also be lacking during the entire course of the disease, if the nutritional disturbances begin early in life and progress very slowly and gradually. An examination of this patient certainly suggests an association of many recognized features of both acromegaly and a certain type of giantism, whether or not we consider the theory which has been outlined sufficient to explain a definite relationship between these two conditions.

MEASUREMENTS.

Height	187.6 cm.	(6 ft. 2 in.)
Weight	198 lbs.	

Head.

Occipito-frontal diameter	20.0	cm.
Biparietal diameter	14.5	cm.
Bitemporal diameter	11.0	cm.
Occipito-mental	27.0	cm.
Occipito-frontal circumference	59.0	cm.
Occipito-mental circumference	71.0	cm.
Distance between malar bones	14.75	cm.
Distance between external angular processes	11.5	cm.
Distance between angles of lower jaw, measured across chin	28.0	cm.
Ears	7.5x4.75	cm.
Nose	5.0x4.5	cm.

Chest.

Greatest circumference	103.0 cm.

Upper Extremities.

	Right.	Left.
Tip of acromion to tip middle finger	85.5 cm.	86.5 cm.
Tip of acromion to tip styloid radius	32.5 cm.	32.5 cm.
Styloid radius to tip middle finger	23.0 cm.	33.5 cm.
Length of metacarpals:	Right.	Left.
1st	6.25 cm.	6.25 cm.
2d	8.0 cm.	8.0 cm.
3d	8.5 cm.	8.5 cm.
4th	7.5 cm.	7.5 cm.
5th	6.5 cm.	6.5 cm.
Length of fingers from metacarpo-phalangeal joint to tip—		
Thumb	8.5 cm.	8.5 cm.
Index finger	12.0 cm.	12.0 cm.
Middle finger	14.0 cm.	14.2 cm.
Ring finger	13.0 cm.	13.0 cm.
Little finger	11.5 cm.	11.75 cm.
Circumference of terminal phalanges of ring finger	7.0 cm.	7.2 cm.
Circumference of hand at metacarpo-phalangeal joint	23.5 cm.	24.5 cm.
Circumference of wrists	19.0 cm.	19.5 cm.

Lower Extremities.

Distance from tubercle of tibia to internal malleolus	47.5 cm.	47.0 cm.
Length of foot	30.75 cm.	31.75 cm.
Length of great toe from metatarso-phalangeal joint to tip	9.5 cm.	9.5 cm.
Circumference of terminal phalanx great toe (greatest)	13.0 cm.	13.0 cm.
Circumference of ball of foot	32.5 cm.	31.0 cm.

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A REVIEW OF SOME OF THE RECENT WORK ON THE PHYSIOLOGY AND PATHOLOGY OF THE BLOOD.

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During the past few years the contributions to the subject of the physiology and pathology of the blood have been so numerous that it would be obviously impossible in any article so short as this to speak of more than a few of the more important works. Our object has been to cover as far as possible the whole field of hematology (except that relating to serum diagnosis and therapy, and the parasites of the blood, which we hope to consider subsequently,) in such a way that a brief digest of the more important articles on each separate subject may be given. In the great majority of cases this alone has been done, while in a comparatively few some critical remarks have been added.

This review has as its object merely the putting together in convenient shape of a brief summary, as it were, of advances in this field of medicine, so that it may be easily accessible to all who are interested in the subject.

For convenience the article has been subdivided as follows: I. New methods of determining the various constituents of the blood and new fixing and staining methods; II. Origin and significance of the various blood-cells and granulations, both normal and pathological; III. The blood at different periods of life and the differentiation of human blood from that of animals; IV. The influence of exposure to cold and of high altitudes upon the constitution of the blood; V. The anemias, subdivided into—(a) Pernicious anemia, chlorosis, and secondary anemia, and (b) splenomyelogenous and lymphatic leukemia, pseudo-leukemia, and splenic anemia; VI. Leucocytosis, including eosinophilia; and VII. The blood in special diseases and pathological conditions.

Under V and VI only general questions regarding anemia and leucocytosis will be considered, while under VII the new work of importance regarding the changes of the blood in various diseases and pathological conditions will be considered, whether these changes affect red-blood cells, hemoglobin, white-blood cells or plasma.

I. New Methods of Determining the Various Constituents of the Blood, and New Fixing and Staining Methods.

(a) *Methods for Determining the Hemoglobin and Counting the Corpuscles.*

Several efforts have been made to do away with the necessity for using the von Fleischl hemoglobinometer, partly because of its rather large size and partly because of the many criticisms which have been leveled against the instrument, many claiming that

it is not accurate, although in the Miescher modifications of the instrument this latter criticism undoubtedly does not hold. Talquist (reprinted in *St. Paul Medical Journal*, May, 1900) describes a simple method and one requiring but little apparatus. The ear or finger is pricked and a drop of blood obtained large enough to make a circle 5 to 6 mm. in diameter on perfectly white filter paper, after which it is compared by daylight with a colorimeter scale carefully prepared by Talquist.

Dare (*Philadelphia Medical Journal*, September 22, 1900) describes an ingenious and compact new hemoglobinometer. The advantages claimed by him for this instrument over the von Fleischl or the Oliver hemoglobinometer are: An immense amount of labor is saved by dispensing with dilution and its possible errors; leucocytosis cannot influence the results; adjustment is made for the color curve; the color shades for comparison are made more decided; the pipette is absolutely clean, and, most important of all, the readings are uniform and accurate and depend upon principles which allow the best analysis of color shades in the shortest time; results within 1 or 2 per cent. are obtained with a certainty hardly obtainable with other instruments.

The application of the instrument depends upon the fact that the color of a thin film of blood illuminated by candle-light may be compared with a graduated color scale.

In counting the corpuscles Oliver's tintometer promises to be an instrument of great convenience if it possesses the accuracy claimed for it by its author.

(b) *New Methods of Fixing and Staining the Blood.*

Various new methods of fixing the blood-films have been suggested, some to bring out some special features of the corpuscles, others to hasten the process of fixation.

Edington (*British Medical Journal*, July 7, 1900) recommends the use of formaldehyde vapor, the specimens to be fixed being placed in a bell-jar 135 mm. in diameter and 150 mm. high, while Marcano (*Arch. de Méd. expérim.*, May, 1899) prefers a solution of formol, using a 10 per cent. solution in absolute alcohol usually, while if the red-blood corpuscles are to be measured he recommends weaker solutions, 1 per cent. in water and salt solution, as the stronger solution deforms the red corpuscles.

Knijaskow (*Centralbl. für allg. Path. u. path. Anat.*, p. 398, 1899) uses as a fixing agent a mixture of equal parts of 1 per cent. aqueous solution of osmic acid and 2 per cent. alcoholic (96 per cent.) solution of bichloride of mercury. The blood-films are left in the mixture three minutes, then dropped into distilled water containing two or three drops of acetic acid, and then washed in a large amount of water. The stains he recommends are as follows: For recurrent spirilla, stain a few seconds in somewhat diluted Ziehl's fuchsin; for blood-plates, methyl-blue and 5 per cent. carbol fuchsin; for malaria, either eosin and methylene-blue or in Böhmer's hematoxylin one-quarter hour, followed by further staining in Pappenheim's mixture (rosabergal six, orange two, aurantia

one, dissolved in water twenty, and then absolute alcohol one, and glycerine one added).

Jenner (*Lancet*, February 11, 1899) has devised a method for fixing and staining the blood-films in the same procedure, only two minutes being required for the entire process. The reagent is made as follows: Equal parts of 1.2 to 1.25 per cent. Grübler's water-soluble eosin in distilled water and 1 per cent. Grübler's medicinal methylene-blue in water are thoroughly stirred together and allowed to stand for twenty-four hours; it is then filtered and the residue dried and powdered, shaken up with distilled water and filtered and dried again, and this final residue stored up in bottles. For use, one-half gramme is dissolved in 100 c. c. pure methyl alcohol and filtered, and to fix and stain a few drops of this are added to the fresh film, allowed to remain in contact from one to three minutes, washed off in water until the film is a pink color, dried in the air and mounted.

Michaelis (*Deutsche med. Wochenschr.*, 1899, No. 30) describes a universal coloring method for blood preparations, this preparation staining at the same time neutrophiles, eosinophiles, basophiles and blood platelets. The blood is fixed by absolute alcohol or by heat. Two preparations are used—(1) 1 per cent. aqueous solution of methylene-blue (absolutely pure), and (2) 1 per cent. aqueous solution of eosin, great care being taken that distilled water is used. From these are prepared two other solutions—(a) 20 c. c. of stock solution No. 1 and 20 c. c. of absolute alcohol, and (b) 12 c. c. of stock solution No. 2 and 28 c. c. of acetone. To stain, one mixes 1 c. c. each of solutions (a) and (b), pours the mixture in a glass dish, in which the blood preparation is placed, smeared side down, and the dish kept carefully covered. The time required for staining varies between one-half and ten minutes.

Hewes (*Boston Medical and Surgical Journal*, July 13, 1899) for routine clinical work recommends that the fixed specimen be stained in Ehrlich's triacid stain for four minutes, washed in water, and then stained for from one-half to ten seconds with Löffler's alkaline methylene-blue. This method has the advantage of making a marked tinctorial distinction between the nucleated red-blood corpuscles and the lymphocytes, and of staining malarial organisms if they should be present.

Determann (*Deutsch. Arch. f. klin. Med.*, Vol. LXI, parts 3 and 4) gives the following method for counting and staining the blood-plates: The diluting fluid used is 9 per cent. solution of sodium chloride, to which a little methyl-violet has been added or a mixture of 1 per cent. solution of sodium chloride and 5 per cent. solution of potassium bichromate; a drop of either of these is placed on the finger, and through this the finger is pricked. The blood and fluid is mixed with a cover glass and then transferred to a Thoma-Zeiss counter. The relation of the blood-plates to the red-blood cells was found by this method to be: Average (of twenty-five cases), 1.22; maximum, 1.18; minimum, 1.30. An increase of the blood-plates was noted in many diseases associated with anemia.

For obtaining stained specimens the blood is mixed with either of the above diluting fluids, and the films made from this stained with methyl-violet.

Determann believes that the blood-plates are derived from the red-blood cells by the extrusion of certain processes from the latter, these processes not containing hemoglobin.

(c) *Determination of the Alkalinity of the Blood, and of Various Constituents, Normal and Pathological, of the Serum.*

Hladik (*Zeitschr. f. klin. Med.*, XXXIX, p. 194) recommends Behrend's method: 1 c. c. of blood is centrifugalized with 5 c. c. of 1 per cent. sodium chloride solution, and first the blood serum, later the red-blood corpuscles, dissolved in water and titrated with a 1-50 normal acid solution, litmus being used as an indicator. He thinks this gives a truer reading than the determination of the alkalinity by examination of the ash, as the two non-saturated sodium phosphates, by heating in the presence of sodium chloride, increase in alkalinity.

Burmin (*Zeitschr. f. klin. Med.*, XXXIX, p. 365), using a slight modification of Landois' method, determined the alkalinity in a number of pathological conditions. He found a diminished alkalinity in cirrhosis of the liver, jaundice, phthisis, nephritis, malaria, leukemia, anemia, diabetes, gout and obesity. He also found a decrease in alkalinity in nine cases of simple chlorosis, although other observers have described an increased alkalinity in this condition. Burmin found that in these nine cases, associated with the administration of iron, there arose a gradual increase in alkalinity. A transitory increase in alkalinity could be brought about by drinking alkaline waters, as Vichy.

Fodera and Ragona (*Arch. ital. de Biol.*, XXIX, 1, p. 34), from experiments upon rabbits and dogs, conclude that the alkalinity of the blood varies with the food; that it is diminished after fasting, after the ingestion of hydrochloric acid and after slowly-produced asphyxia, while it is increased after the administration of alkalies by mouth. They were unable to show any relationship between destruction of red-blood corpuscles and alkalinity of the blood.

Winterberg (*Zeitschr. f. klin. Med.*, XXXV, parts 5 and 6, and *Wiener klin. Wochenschr.*, XXXV, 27, 1898), from his observations on human beings in health and disease and from experiments upon dogs, comes to the following conclusions regarding the presence of ammonia in the blood: (1) Normal venous human blood contains already-formed ammonia from .6 to 1.3 mg. per 100 c. c., .9 mg. as an average; (2) in fever it may be increased or decreased, and is susceptible of great variation; an association between the height of the fever and the ammonia content of the blood is not demonstrable; (3) the comatose condition seen in acute yellow atrophy may come on without increase of the ammonia content of the blood; (4) uremia is not to be considered as an intoxication due to carbonic acid; (5) in diabetic coma a marked increase of the ammonia in the blood may be demonstrated.

II. Origin and Significance of the Various Blood-Cells and Blood Granulations, Normal and Pathological.

(a) *Red-Blood Cells.*

During the past two years several valuable articles have appeared concerning the mode of origin of the red-blood cells.

Engel (*Deutsche Med. Wochenschr.*, 1899, No. 13) has paid especial attention to a consideration of the embryonal and pathological red-blood corpuscles, his studies being carried on upon human blood and that of dogs, the preparations being fixed by heat and stained with Ehrlich's triacid stain. By a study of the embryonic blood at various stages of development of the embryo, Engel concludes that the bone-marrow is the seat of origin of the red-blood cells, and that from the nucleated orange-staining normoblasts found there the non-nucleated red-blood cells are derived, mostly by disappearance, but partly by extrusion of the nucleus. From the condition of the bone-marrow in anemia Engel concludes that Ehrlich is right in asserting that pernicious anemia can be diagnosed from the study of the blood alone, and that the presence of megaloblasts in the blood in this disease is an extremely unfavorable sign.

Jünger (*Deutsch. Arch. f. klin. Med.*, 1900, LXVII, parts 1 and 2) made careful observations to determine the nature and frequency of the nucleus in the red-blood corpuscles, staining his preparations in picric acid and subsequently in weak hematoxylin and eosin, and devoting especial attention to the study of the red-blood corpuscles in leukemic blood. According to Jünger the fate of the nucleus appears to be: First, a shrinking, with increased ability to take the stain; the nucleus then assumes a peripheral position; then it may break up into small parts that may either be separated or united; there is then a moderate karyolysis, and, finally, the nucleus disappears completely.

The blood-forming properties of bone-marrow have been shown by many observers, as Cohnheim, Bizzozero, Golgi, Neumann, Salvioli, Litten and Domenici. Recently Zen (*Gazz. degli. ospedali*, 1900, No. 63) has devoted considerable time and attention to this subject. His work comprised sixty-four cases in all, the ages varying from eight to eighty-eight years. To determine whether the bone-marrow was in active function he used as a criterion the presence of nucleated red-blood cells in the circulating blood. He concludes that in health the blood-forming property of the marrow of the long bones is resting, as also in the cases of infectious diseases of short duration (as pneumonia). On the other hand, in infections of longer duration (as typhoid) the blood-forming function is present, but does not begin before the end of the second week. The age of the patient seems to be without influence upon the blood-forming properties of the bone-marrow. Kölliker and Ecker were the first to call attention to the spleen as a blood-destroying organ. Reich (*Fortschr. der Medicine*, 1899, XVII, p. 361) has carried on an investigation in regard to this point upon the frog's spleen, and comes to the same conclusion, showing all forms

of degeneration of the red-blood cells. First defects and vacuoles, containing hemosiderin granules, made their appearance in the cell's periphery; the process gradually became more and more marked, until finally the whole cell was affected. The nucleus also undergoes changes; it shrinks, loses its structure, and karyolytic and karyorhexic processes set in.

(b) *White-Blood Cells.*

Jolly (*Arch. de Méd. expér.*, 1898, X, p. 616) has carried on a series of researches upon the morphological value and significance of the different types of white-blood cells. The conclusions he arrives at are as follows: These elements all belong to the same family and are characterized by ameboid movement; it is probable that a "ttrform" exists, from which they all arise. The differentiation of the different types depends on several factors, for the most part still unknown. In the normal blood of mammals, especially in human blood, one does not find a complete row of intermediate forms to constitute an unbroken series. In certain cases of leukemia, however, all intermediate forms, from the smallest mononuclear to the polymorphonuclear, may be found. Normally, the nucleus of the eosinophile is polymorphous, and never, under normal conditions, is it large and round, as it is frequently found to be in leukemia. The eosinophiles show almost always true ameboid movements. The small mononuclears appear in general to possess no movements, yet they can send out pseudopods. This is especially well seen in the lymph of batrachians. The sprouting nucleus of the white-blood corpuscles appears to belong to the more active forms, and instead of signifying the death or destruction of the leucocyte, in reality represents the marked activity of the cell protoplasm.

Naegli (*Deutsch. med. Wochenschr.*, May 3, 1900) expresses his views regarding the nature of the cells found in the bone-marrow. He believes that the usual classification into small cells, free from granules, and cells of almost the character of myelocytes, is artificial, because various intermediate forms are met with. Naegeli believes the cells free from granules are entirely different from lymphocytes. He calls them myeloblasts, as he thinks the myelocytes are derived from them. According to him they do not stain so intensely as the lymphocytes, the cell-body and the nucleus are always round, and they show forms intermediate between themselves and the larger elements, which lymphocytes never do. After giving other differences, he states that the myeloblasts are found in pernicious anemia, as this disease is a reversion to the embryonal type.

Lengemann (*Deutsch. med. Wochenschr.*, December 28, 1899) furnishes an interesting research upon the origin of leucocytosis. After intraperitoneal injections of liver or kidney broth, infections with staphylococci, or colon bacilli, or intoxication with sodium cantharidinate, the bone-marrow becomes almost fluid and very dark in color. The leucocytes are found to be more numerous here than elsewhere in the blood. Some are seen projecting

slightly into the blood-vessels, others only slightly attached to the parenchyma, while others are seen free in the current. As the marrow becomes dark red and soft these spaces where the leucocytes are become much larger, and the leucocytes are swept away by the increased volume of blood, and appear as a pronounced leucocytosis in the blood as a whole. The hyperemia gradually subsides, and by the eighth day the marrow contains less blood than in normal conditions, the blood being crowded out of the spaces mentioned above because of the greatly increased mitosis of the cells of the parenchyma, leucocytes, etc. This research seems to show that the marrow is involved in more affections than is usually supposed, and that the processes accompanied by leucocytosis induce marked changes in the marrow.

Schuhmacher (*Arch. f. mikroscop. Anat.*, 1899, LIV, p. 331) has paid especial attention to phagocytosis and productions of leucocytes in the lymph glands, his experiments being carried on upon apes, men and other vertebrates. He found distinct phagocytes containing red-blood cells in various stages of degeneration in the lymph glands. Also, by counting the leucocytes in the small veins and the small arteries of these glands, he concludes that there is normally a production here of leucocytes, as the former count was invariably greater than the latter.

(c) *Normal and Pathological Granulations in Red and White Blood Cells.*

Hamel (*Deutsch. Arch. f. klin. Med.*, LXVII, parts 3 and 4) furnishes an interesting article upon the relation between the granular degeneration of the red-blood cells and other morphological changes in the blood, with an especial consideration of lead intoxication. The method employed by him was the fixation of the cover slips in absolute alcohol, and then staining them with Löffler's methylene-blue until they are a clear blue color, this showing well the basophilic granulations. These granulations seem to occur most frequently in lead poisoning, of which he reports twenty-five cases, and are one of the earliest diagnostic signs of this affection. They may disappear if the patient has been free from the poison for a long time. He found them also in one case of pernicious anemia, although they gradually disappeared as the patient got better. Among eight cases of carcinoma they were found only in those with profound cachexia, and out of twelve cases of chlorosis in only one (in which there was extreme coprostasis), while they were not present in nine cases of tuberculosis, seven cases of acute febrile disease, in twenty-six other cases suffering with various diseases (cirrhosis of liver, myoma of uterus, nephritis, diabetes, etc.), nor in twenty-four cases of syphilis. They were present in two cases of extreme anemia in children, and in one case of purulent perityphitis. They seemed to bear no relation to any other form of alteration of the blood constituents.

Kohn (*Münch. med. Wochenschr.*, February 6, 1900) believes these basophilic granules in the red-blood corpuscles are the evidences of a partial degeneration of the protoplasm of the cells, de-

pendent upon the hydremia following the loss of blood. He arrives at this conclusion because of the fact that he could cause these to appear in animals experimentally by the abstraction of blood, and because he found them in three cases of pernicious anemia.

Litten (*Deutsch. med. Wochenschr.*, November 2, 1899) found these granules in all classes of primary and secondary anemia, the granulations increasing in number as the anemia became worse. These granules are orthochromatic, in contradiction to the "Mastzellen" granulations, which are metachromatic. They stain best in methylene-blue, toluidin-blue, thionin and alum hematoxylin. Litten thinks these granules may be due to the anemic degeneration of the protoplasm of the red-blood cells and alteration of the hemoglobin, or perhaps to nuclear degeneration.

Grawitz (*Berliner klin. Wochenschr.*, February 19, 1900) believes that these basophilic granules are simply indications of a degenerative change, due to various causes, and are in no wise specific. They were especially numerous in pernicious anemia, cases with much toxic absorption, leukemia and lead poisoning. They were entirely absent in chlorosis (twelve cases), syphilis (twenty-one cases), advanced tuberculosis, afebrile and without cavity formation (thirteen cases), and were never found in parenchymatous nephritis, contracted kidney or hepatic cirrhosis. The increase or decrease of these granules seem to furnish a good indication of the change in the disease. The granules may appear in the cells before any other morphological changes are to be made out, and thus may lead to an early diagnosis of one of the conditions with which their presence is associated.

Hofbauer (*Centralbl. f. Inner. Med.*, February 10, 1900), by the use of a stain consisting of one part of iodine, three of potassium iodide and 100 of water, found that the white-blood cells contained certain iodinophilic granules almost constantly in pernicious anemia and leukemia, while they were absent in pseudoleukemia and chlorosis, and scarcely present in moderate grades of secondary anemia. They seemed to be more marked the more severe the anemia, and could, therefore, be used prognostically.

Grünwald (*Centralbl. f. Inner. Med.*, 1899, No. 30, and 1900, No. 14) describes certain granules, which he called hypeosinophilic, which he found in the mono- and polymorphonuclear cells of the blood, as well as in the cells of sputum and pus. They are very fine, are stained by eosin, but decolorized by acids, and especially by alkalies, while in Ehrlich's triacid stain they appear a fuchsin red (the ordinary coarse eosinophilic granules are stained an orange color in this mixture).

The so-called Neusser's perinuclear granules, regarded by that investigator as a sign of the uric-acid diathesis, have been carefully studied by Simon (*American Journal Med. Sc.*, February, 1900), who arrives at conclusions directly opposed to those of Neusser. According to Simon the granules were found in the leucocytes in almost all cases, even among healthy individuals, and they were no more abundant in gouty than in normal individuals.

They were not found in the majority of cases of malignant neoplasm, but their absence is not pathognomonic. Simon could not confirm Neusser's observation that a relationship exists between the presence of these granules and the elimination of uric acid or the xanthin bases.

(To be continued.)

Current Literature.

SURGERY.

Under the Direction of Hugh H. Young, M.D.,
Assisted by Wm. E. Huger, Jr., M.D.,
Baltimore.

THE SURGICAL TREATMENT OF PRIMARY RENAL TUBERCULOSIS. Otto G. Ramsay. *Annals of Surgery*, October, 1900.

The treatment of tuberculosis of the kidney has become now almost entirely surgical. It is true that enough cases are on record to show that the disease may occasionally become cured or arrested by processes similar to those that occur in the healing of lung tuberculosis, but the success attained by hygienic and medical treatment has been so slight as to warrant no such experiments in operable cases.

The operative measures may be either palliative (nephrotomy) or curative (nephrotomy, resection of a portion of the kidney, nephrectomy, nephroureterectomy).

There are many cases in which simple nephrotomy is the proper procedure—cases with disease of other viscera, cases too weak to withstand nephrectomy, cases with large abscesses and extensive adhesions. In such cases the simpler operation is safer, may tide the patient over a crisis, and pave the way for the adoption of radical measures at a later date; but as a curative operation nephrotomy is a failure.

It is true that where all pus cavities have been emptied, thoroughly drained and perhaps curetted cure may result, but this chance is small. Thus, out of fifty-five nephrotomies collected from the literature, we find but four in which recovery can be claimed, and only one of these cases was followed a sufficiently long time. Fifteen cases died within the first month, and twenty-two within three years.

Resection of a portion of the kidney as a curative measure has also been a disappointment. Thus, out of nine cases collected by Wolff, two only gave satisfactory results. Our inability to determine with any certainty how much of the kidney is diseased renders this operation a dangerous procedure.

Excision of the entire kidney along with the ureter, if diseased, is the procedure of election. The extraperitoneal method is shown to be a much safer procedure than the abdominal, the principal danger being from peritonitis, which has followed only the abdominal method (four cases).

Out of 191 primary nephrectomies, fifty-four died—thirty-seven within a month and seventeen later. This immediate mortality of 19 per cent. is small when we consider that this includes the earliest cases, and the fact that the requisite care to find out the condition of the other kidney by recent methods had only been carried out in a small proportion of the fatal cases. If unrecognized disease of the other kidney, peritonitis, hemorrhage and carbolic-acid poisoning, all more or less preventable causes of death, be deducted, the mortality would be reduced to about 9 per cent. Modern methods carried out early should further reduce the future mortality.

The persistent fistula which sometimes follows nephrectomy is probably most often due to disease of the ureter, although a number of cases are on record to show that tuberculosis of the ureter remaining may be arrested or cured. However, numerous cases to the contrary furnish full justification for the complete, simultaneous removal of the ureter where it shows marked evidence of disease, and the brilliant cases of Reynier, Kelly, Elliott and others have firmly established the operation.

The well-proven ability of the bladder to throw off early tuberculous involvement after removal of the focus above seems to contraindicate excision of part of the bladder along with the kidney and ureter.

In conclusion, it may be said that the treatment of renal tuberculosis should be always surgical,—palliative if necessary, radical if possible—and that it is proper to remove the ureter to prevent fistula.

* * *

DOES CASTRATION LEAD TO A SUBSEQUENT ATROPHY OF THE PROSTATE? E. L. Keyes, Jr. *Medical Record*, July 21, 1900.

E. L. Keyes, Jr., discusses this question at some length, and in reviewing the history of the operation he says: "In the early days, in spite of the protests of a few men, the general enthusiasm over a novel and comparatively simple surgical procedure, promising such brilliant results, dazzled the cautious, and emboldened the incompetent, while the accumulation of favorable evidence from all sides soon overbore all but the most skeptical. Comparative anatomy, embryology, pathology, teratology, each contributed its share to round out with scientific fullness the monument of clinical medicine. There were flaws—here and there a failure to attain the anticipated result, in one report, an undue mortality, in another, the warning of post-operative dementia; but these availed nothing to check the pendulum of public opinion, and White was able to publish in 1895 a table of 111 cases, with twenty deaths. * * * In the meantime similar but less radical pro-

cedures were advocated. Harrison introduced vasectomy, of which twenty-two cases, with seven deaths (all at the hands of a single surgeon), were tabulated by Cabot in 1896. Unilateral castration, angioneurectomy of the cord and the injection into the testicle of irritating fluids for the purpose of producing atrophy were not slow to follow."

Although at first the most remarkably rapid atrophic changes were noted in the prostate after castration, very few microscopical examinations to determine its nature in subsequently fatal cases have been made.

The first report was that of White, who described marked microscopical evidences of atrophy in a prostate two days after the operation. A little later Griffiths reported a similar observation in a specimen obtained eighteen days after the operation. Since then ten more cases have been published by various observers, but all of these are agreed that no microscopical evidences of atrophy were present, although twelve months and sixteen months had elapsed since the castration in two cases.

After furnishing a careful record of a case of castration which had gone sixteen months with no improvement, and subsequently been cured by enucleation of two large prostatic lobes, which showed no microscopical sign of atrophy, Keyes says: "Experiments relating to the normal prostate do not of necessity apply to the enlarged prostate."

"There is pathological evidence that castration has failed to produce an atrophy, but no acceptable evidence that it has ever caused an atrophy. The majority of cases reported thus far have been labeled cured or improved so soon after operation that many of them are doubtless instances of local depletion. Clinical evidence of this is afforded by relapses occurring months after the operation."

Of the permanent cures, some may well be instances of permanent advantages derived from reduced congestion.

"The clinical evidence as to the actual atrophy of the prostate after castration lacks as yet its scientific confirmation, and has failed thus far to prove its title to the surgeon's credence."

* * *

THE TREATMENT OF STRICTURE OF THE URETHRA.

This was a subject for discussion which occupied much attention in the *Section of Urinary Surgery at the Thirteenth International Medical Congress*, and a summary of some of the views there expressed may be of interest.

HARRISON (of London) considered internal urethrotomy the operation of choice in nearly all cases in all regions. He considered dilatation alone ineffectual, and even harmful, in some cases, and that some cases may get well after internal urethrotomy without the subsequent use of sounds. External urethrotomy he considered generally only necessary in the presence of fistulae.

In marked contrast to these views were those expressed by the French surgeons, who considered the subsequent dilatation all

important, and often favored perineal section, and even resection of the urethra in some cases.

The very general use of internal urethrotomy by all the Europeans was in marked contrast with American methods, but the following abstract of views expressed seems to show a tendency to depart from this practice:

HERESCO: No operative methods known can give at once a positive cure, except resection, which is only applicable in certain cases.

Internal urethrotomy employed in gonorrheal strictures, where there is always more or less total sclerosis of the urethra, is not definite in its results. It only renders dilatation easier. All internal urethrotomies without subsequent dilatation are certain to be followed by recurrence.

The duration of time before a return of stricture depends upon the more or less complete subsequent dilatation, and varies between a few weeks and twelve years.

External urethrotomy gives no better results than internal. Recurrence occurs as after internal and in equally variable times. When fistulae are present or very extensive in duration, then the external is better, because it allows the diseased parts some freedom from the urine.

Resection under certain conditions can give an absolute cure.

All operative methods ought to be followed by dilatation.

ALBARRAN: We can only indicate in a very general way the method that should be employed.

Electrolysis by the rapid method (one sitting) causes speedy recurrence of stricture. If done more slowly the results seem better, but not good.

Gradual dilatation ought to be done methodically to No. 60 Bénique. This is especially good when there is an accompanying chronic urethritis. But the lumen has to be maintained by dilatation at successive periods afterwards.

Internal urethrotomy ought to be considered only as the first step in gradual dilatation. It is better to make several cuts in this operation.

External urethrotomy is far superior to any of the above methods, but is applicable only in a limited number of strictures. Some patients are cured after this operation even with no subsequent treatment. These, however, are rare, and sounds should always be used.

Resection of the urethra in inflammatory strictures, limited to the perineo-scrotal region, gives results even superior to external urethrotomy. In the penile region extended resection may produce chordee.

Inflammatory strictures complicated by tumors or fistulae must be treated by external urethrotomy or total resection.

Traumatic strictures may be cured by external urethrotomy, but resection is the operation of choice.

NOGUES: Out of 132 urethrotomies belonging to Guyon's

clinic the sixty-eight who continued to dilate are well, while the sixty-four who discontinued had recurrence.

Recurrence is no more frequent after simple dilatation than after operation. I believe there are only two clear indications for urethrotomy: First, infections, and, secondly, the difficulties which some hard urethras present to gradual dilatation. I have had to do urethrotomy only three times.

JANET: Internal urethrotomy is apparently a good introduction to dilatation, but is unnecessary where time is no object. I use on tough strictures a specially-constructed sound. With this I dilate all my private cases. Three of my patients with very hard strictures have had urethrotomy performed, but soon fell back to their old numbers. I have concluded that the good results obtained by internal urethrotomy are due to the dilatation that follows.

PATHOLOGY AND BACTERIOLOGY.

By José L. Hirsh, M.D., Baltimore.

ETIOLOGY OF SCARLET FEVER. Wm. I. Class. *The Lancet*, September 29, 1900.

In this article Class calls attention to the similarity of the germ of scarlet fever, which he described in 1899, with the one which Baginsky and Sommerfeld have but recently described as the specific cause of this disease (*Berliner klin. Wochenschrift*, July, 1900). While Class does not state positively that the two germs are identical, the description given by Baginsky and Sommerfeld of the organism which they have found constantly present in the throat and blood of patients suffering from scarlet fever corresponds in many particulars with the diplococcus scarlatinae of Class. The latter thinks that the long chains of streptococci which Baginsky and Sommerfeld describe as occurring along with the diplococci are not other forms of the same organism, but are due to complicated cases of scarlet fever or to contamination of their cultures.

In Class' original article (*New York Medical Record*, September, 1899) he described the morphology of the diplococcus scarlatinae as follows: "In young cultures grown from the blood of a scarlet-fever patient the germ is usually seen as a diplococcus, both segments of which are globular. Streptococcus forms are occasionally, though rarely, met with, as are also single cocci. When grown on earth agar it resembles a very large gonococcus. The morphology of the germ varies according to the medium in which it is grown." Gradwohl likewise states (*Philadelphia Medical Journal*, March 24, 1900) that the germ shows no prominence of

morphological character. Class offers the following evidence that the diplococcus scarlatinae is the cause of scarlet fever.

1. Evidence showing that the diplococcus scarlatinae is a germ constantly present in scarlet fever:

Class found it in 300 successive cases of scarlet fever and scarlatinous sore throat. Gradwohl found it in seven consecutive cases, and Jacques demonstrated its presence in every one of a large number of cases examined.

2. Evidence showing that the diplococcus scarlatinae is a pathogenic micro-organism:

The germ proved pathogenic for mice, swine and guinea-pigs. Rabbits and white rats appear to be but slightly, if at all, susceptible, while cats and dogs are immune. The diplococcus could be obtained from the organs of the susceptible animals after death.

3. Evidence showing that scarlet fever can be produced in animals by the diplococcus scarlatinae:

The disease was reproduced in white swine. After an intravenous injection of a virulent culture of the organism the animal will sicken; there will be a rise in temperature. After three or four days there will be a reddening of the skin, to be followed later by scaling, giving a rather typical clinical picture of the disease.

4. Evidence showing that pathological changes in the organs caused by the diplococcus scarlatinae resemble those of scarlet fever:

Signs of nephritis were usually observed in animals which died following an inoculation of the germ. Spleen enlarged and congested; liver shows numerous necrotic areas, and is congested; lymphatic glands of neck enlarged.

5. Evidence showing that the disease produced by the diplococcus scarlatinae is of a contagious nature:

Healthy swine put in a pen with a pig that was scaling after having been inoculated with the diplococcus soon showed symptoms of the disease. Gradwohl has shown that if a healthy mouse is put in a cage where a sick mouse had been kept it will sicken and die, and the diplococcus may be found in its organs on autopsy.

6. Influence of blood of scarlet-fever patients on the activity of the germ:

Plate cultures made from a loopful of a pure culture of the organism showed numerous colonies, whereas a similar loopful of the culture, first diluted with blood of a scarlet-fever patient, shows in plate culture but a few colonies. Blood from a non-scarlet-fever child failed to inhibit the growth of the organism. A repetition of these and similar experiments seem to demonstrate the inhibitory action of scarlet-fever blood on the growth of the germ.

7. Finding of the diplococcus scarlatinae in throat secretions of patients with scarlatinous sore throat a further proof of its specific character:

Not only in cases of scarlatinal angina with a typical eruption,

but also in those cases of scarlatina sine eruptione the organism may be demonstrated in the throat. Class calls attention to the fact that during an epidemic of scarlet fever the organism may give rise to an acute tonsillitis, without any eruption. This explains those cases in which one child of a family has scarlet fever, while another develops a tonsillitis, followed by a nephritis and desquamation. The rash is only one of the symptoms caused by the germ, but not an essential one.

8. Growth in milk without affecting this medium—a fact in its being one of the causes of scarlet fever:

As it produces no visible change in milk, such as coagulation or digestion, the disease may readily be disseminated by infected milk—a well-recognized occurrence.

9. Finding of the diplococcus scarlatinae in cases of surgical scarlet fever demonstrates its value:

In several cases of rash following surgical operation the finding of the diplococcus scarlatinae in the blood separates these cases from true septic rashes.

* * *

The Practical Significance of Eosinophile Cells. S. Bettmann. *Klin. Vortrag*, No. 266.

The eosinophilic cells have been the object of much investigation in recent years. In spite of this, comparatively little has been gained for practical medicine. As is well known, they appear in small numbers in the human blood, in large numbers in the marrow. These cells are especially prominent on account of their activity, and were therefore known before the differential stain of Ehrlich was used. The clinical significance of these cells is yet but little understood.

At one time their abundance in the vesicles of pemphigus chronicus was considered pathognomonic. The same findings were, however, made in other vesicles, so it lost its practical significance. Noteworthy is the occurrence of eosinophiles in gonorrheal pus.

The sputum has been one of the main subjects in the investigations of eosinophilic cells. At first positive results were valued in bronchial asthma; later the cells were observed in a series of pulmonary affections. According to Teichmüller, in phthisis eosinophiles appear in the sputum before tubercle bacilli, and disappear when the latter appear.

In the blood, where the cells are normally found, their number is influenced by various physiological conditions, such as nursing, hunger, etc. In many infectious diseases, pneumonia, typhoid fever, acute rheumatism, meningitis, sepsis, etc., their number is diminished at the height of the attack, and later increased. Still for diagnostic or prognostic use this circumstance has not proved of much value. Skin diseases, syphilis, gonorrhea and chemical irritations influence the blood eosinophiles.

Bettmann concludes that while the presence or absence of eosinophiles may be of aid, it does not give an absolute diagnosis.

* * *

A Case of Intrauterine Epidemic Cerebro-Spinal Meningitis. R. B. H. Gradwohl. *Philadelphia Medical Journal*, Vol. IV, pp. 445, 446.

The author describes the case of a woman who died in the seventh month of pregnancy of cerebro-spinal meningitis. Autopsy took place five hours after death. The diplococcus intracellularis meningitidis was obtained from the spinal fluid of both mother and child. The first symptoms of the mother were severe pains in one ear, and at autopsy the diplococcus meningitidis intracellularis was isolated from the pus from the ear. The kidneys of the woman showed an acute parenchymatous nephritis. The spleen was enlarged, but not soft, and outside of a typical cerebro-spinal meningitis the other organs were normal. A similar finding was noticed in the fetus, only the fluid was not so markedly purulent. Cultures from the lungs, blood, placenta and uterus were negative. The pus from the ear, as well as the meningeal exudation of mother and child, was injected into three dogs, with positive results, the dogs dying with convulsions.

Gradwohl could find no similar case of fetal infection in the literature. Herwerden (1893) reported a case of sporadic infection in a mother whose child died five days after birth (Cesarean section) of meningitis. In this case, however, the pneumococcus was found, and it is possible that the infection occurred after birth.

* * *

A Preliminary Note on the Experimental Production of Cancer. H. Lambert Lack. *Journal of Pathology and Bacteriology.*

In marked contrast to the views of Leopold as to the etiology of carcinoma (*Archiv f. Gynakol*, Bd. LXI; review, Maryland Medical Journal, November, 1900) is that of Lack, who discards the theory that cancer is due to the "outrageous" overgrowth of epithelium provoked by some stimulus, such as a parasite, but maintains that it is simply the result of the entrance of the normal epithelium of the body into the lymphatic spaces and its continual growth therein. To test this view the author introduced normal epithelium from a healthy animal into its own lymphatics. He used a rabbit; opened the peritoneal cavity, opened the ovaries, and scraped the raw surfaces with the sharp edge of the knife. The rabbit recovered from the operation and remained well for nearly a year; then it became thinner and weaker, and was killed. On post-mortem examination the animal was much emaciated. On opening the abdomen numerous white, hard, roundish nodules were seen in the mesentery; dense patches penerated the liver tis-

sue. Spleen, kidneys and intestines appeared normal. The uterus was greatly thickened, and a tumor the size of a cherry was found in its walls. Dense white tumors were found on the parietal surface of the pleura; a few also in the lungs.

Microscopical sections of the nodules in the mesentery, uterus, liver and pleura showed that the growths consisted of alveolar spaces, lined by layers of columnar epithelium. In the liver growths the alveoli were very large, irregular in shape, and lined by a single layer of columnar epithelium. In growths from other parts the alveoli seemed almost filled with cells which had lost their columnar shape. The sections showed the typical structure of a columnar cell carcinoma, and the tumors had all the character of an ovarian cancer. Moreover, the growths being found not only in the peritoneal cavity, but in the pleura, etc., shows that the lymphatic system had been infected.

Taking into consideration all these circumstances, namely, that the rabbit was affected with a new growth producing metastatic deposits, and having all the microscopical characters of ovarian cancer, that this followed implantation of ovarian cells into the peritoneum, and that carcinoma of rabbits is extremely rare, makes Lack claim that there can be little doubt that the operation caused the disease.

The author states the following reasons which led him to form the above-mentioned theory and to perform the experiment:

1. The epithelium of cancer is practically identical with the normal epithelium of the body.

2. The remarkable relation of cancer to the lymphatics—the spread of cancer always takes place in the direction of the lymph flow. There is little doubt that the alveoli of cancer from its very commencement are simply lymph spaces, and the primary cancer, at any rate, is simply a long tube of normal epithelium invading the lymph spaces.

3. The fact that carcinoma is infectious, and that there is reason to believe that the epithelial cells themselves are the infectious agent. Cases of carcinoma have been implanted in a wound made during an operation for the cure of the disease.

* * *

A Contribution to the Infection of Milk of Tubercular Cows. Lydia Rabinowitz. *Zeitschrift f. Hygiene u. Infekions Krank.*, 1899.

The question of the presence of tubercle bacilli in the milk of tubercular cows has of late been much discussed. According to different observers the numbers vary from 5 to 55 per cent., and it has been considered that it is only in the milk of cows with tubercular udders or far-advanced tuberculosis that the bacillus can be found in the milk.

Rabinowitz examined a number of specimens of milk from cows

which responded to the tuberculin test, but showed no other signs of the disease. In fifteen cows, eleven showed tubercle-like bacilli on microscopical examination. Inoculation experiments into guinea-pigs gave positive results in ten cases, *i. e.*, in 66,6 per cent.

In a later communication (*Central. für Bak.*, 1900) Rabinowitz has shown that virulent tubercle bacilli can be obtained from the milk products, *i. e.*, butter and cheese, of tubercular cows. Samples bought in open market gave positive results in inoculation experiments.

The author places great stress on the tuberculin test, and advises its more general application in dairy farms.

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ON THE TRANSMISSION OF TUBERCULOSIS THROUGH THE PLACENTA. Auché et Chambrelent. *Archiv de Med. Experiment et d'Anat. pathol.* T. XI, No. 4.

The authors collected in the literature nineteen undoubted cases of congenital tuberculosis, and add one of their own. The mother died soon after the birth of the child. Autopsy showed a miliary tuberculosis following a chronic pulmonary phthisis. The placenta showed a large number of tubercles.

The child died twenty-six days after birth. Microscopical sections of the liver, spleen, lungs and kidneys showed tuberculosis of these organs. The authors reach the conclusions that the transmission of tuberculosis through the placental circulation is seldom observed. The danger to the child is in proportion to the severity of infection of the mother. Before the fifth month of pregnancy such a transmission has never been noted. The fetal tissues may be involved without showing macroscopical or microscopical evidences, inoculation experiments, however, being positive. When noted the lesions are apt to be present in all organs, seldom remaining localized. The fetal tissues are a good medium for the development of tuberculosis.

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THE PATHOLOGY OF DIABETIC COMA. Karl Grube. *Arch. f. Exp. pathol.*, Bd. XLIV, 1900, pp. 349-362.

To test the assertion of Sternberg, that diabetic coma is due to the presence of beta-amido-butyric acid in the blood, the author studied graphically the changes in respiration and circulation brought about by the injection of this substance into cats. Coma, or a comatose condition, was attained in every case. The respiration was markedly affected, and Grube thinks in an exactly parallel manner to the characteristic respiration of diabetic coma in man. The heart-beat became stronger and the blood-pressure high. In the urine acetone was constantly noted. Grube believes that this coma caused by beta-amido-butyric acid in cats is similar to ordinary diabetic coma.

THE CLINICAL SOCIETY OF MARYLAND.

MEETING HELD AT BALTIMORE, NOVEMBER 2, 1900.

THE meeting was called to order by the president, Dr. W. J. Todd, who, in assuming his new duties, delivered a brief address.

Dr. J. Hall Pleasants: "A Case of Acromegaly—Exhibition of Patient." (See page 578.)

Dr. Osler: I have been very much interested in the treatment of acromegaly, having had some four or five cases here, three of which were under observation for a prolonged period of time. All of them received very thorough and rigid treatment with thyroid extract without any of them receiving the slightest benefit. One patient lost a little weight at first under the use of the drug, just as any patient treated with thyroid will, but in one case, the well-known "Pauline," the patient actually thrived on the extract. Two of our cases took pituitary extract, also, without any benefit.

There is one very typical case of this disease in this city, a colored woman, who has not a very large frame, but whose face and hands are perfectly characteristic. I have seen her several times on the street cars.

It is a very remarkable disease, and I am inclined to hold, with Marie, in the non-union of giantism with acromegaly. The matter is still under observation and discussion, however. I might mention an interesting historical point in reference to the disease in this country. I was on the staff of the *Medical News* when Marie's report came out, and Dr. Hays sent me the paper, with the request for an abstract and an editorial. The following week I went to Toronto, and one of the physicians asked me to visit a remarkable case he had in the hospital. I went with him and saw a perfectly typical case of acromegaly. It was one of the two first cases reported in this country. The other was a merchant who had a very beautiful wife, and they came to be known as the "beauty and the beast."

Dr. Randolph: These cases usually show a primary optic-nerve atrophy in the later stages, and in the case to which Dr. Osler has referred there was a very singular sector-like defect in the field. It might be interesting to have such an examination made here if it has not been done.

Dr. Pleasants: I asked Dr. Friedenwald today to examine the eye, and he attempted to do so, but the patient would not submit to an examination at the time, and we had to desist.

Dr. Osler: Dr. Randolph's remarks remind me that it was an ophthalmologist who first made the diagnosis in one of these cases, basing his opinion upon the peculiar appearance of the field.

Dr. Paton: In this connection I would like to remark that there have been a few cases of enlargement of the pituitary body without acromegaly. Tonight, before coming here, I tried to find some sections of this kind that I have in my possession. Undoubtedly in all cases of acromegaly, with reliable observations, changes in the pituitary body have been found, but there are a great many changes in the pituitary body

without symptoms of acromegaly, so that the hypothesis used to explain the latter affection is not as strong now as it was a few years ago.

A series of reports on the men and papers at the International Medical Congress, held in Paris, August, 1900, were then presented. The first, dealing with the section on otology, was presented by Dr. J. J. Carroll.

HEARING EXERCISES IN THE TREATMENT OF DEAF MUTES.

The section of otology in the International Medical Congress was presided over by Dr. E. Gelle, and included in its membership many well-known men, such as Politzer, Hartman, Dundas Grant, Pritchard, Meniere and others. The average number attending the daily sessions was about sixty or seventy. While the United States had her full quota of doctors at the congress, many of her best otologists were not present. The entire programme consisted of about fifty-seven papers, not one of which was written by a delegate from the States. In the absence of Dr. Katz of Berlin, an American, acting as his substitute, exhibited some transparent, macroscopic preparations of the middle and inner ear. He was the only American to respond to a number on the programme.

The subjects discussed covered pretty well the entire field of otology. Besides individual papers, reports were made upon important topics as follows: 1. Upon a project to make the recording or hearing tests uniform, Drs. Schiffers of Liege, and Hartmann of Berlin. 2. Upon hearing exercises in the treatment of deaf mutes, Drs. Urbantschitsch of Vienna, and Schwendt of Basle. 3. Surgical treatment in sclerosis of the middle ear, Drs. Siebermann of Basle, and Botey of Barcelona. 4. On otitic pyemia, Drs. Grant of London, and Brieger of Breslau. 5. On the causes and treatment of the vertigo of Meniere, Drs. Pritchard of London, and Moll of Arnheim. 6. On toxic diseases of the labyrinth, Drs. Gradenigo of Turin, and Caspariantz of Moscow.

The paper which probably represented the hardest work and elicited the liveliest interest was the report upon hearing exercises in the treatment of deaf mutes. The subject was not an unfamiliar one to the members of the congress, some of them recalling, perhaps, the experiments of Ernaud in 1761, of Pereire in 1768, and of Itard in 1802, while among the more modern workers in this line they would have thought of Toynbee, Jager, Gallaudet, and Javal. But no doubt the one who has of recent years labored most over the method and brought it most prominently before the world is Urbantschitsch, one of the two men who prepared the report.

In 1888 he tried the exercises on a deaf and dumb boy, who could hear only letters when shouted very loudly in the ear. In the course of the experiments the boy gradually became able to hear spoken sentences at from two to four feet, and finally, at the end of two years, he was able to follow a class in one of the common schools. This observation prompted him to give the matter greater attention, and his subsequent efforts have been rewarded with even better results. The method is about as follows:

In a great many deaf mutes who are thought to be totally deaf there is a remnant of hearing power, capable of being developed, and this may be brought about by loud sounds produced either by the voice or by suitable instruments. Let us suppose, for example, a patient who cannot hear

loud conversation nor the sounds of the tuning-fork. In order to detect the amount of hearing left a vowel like *a* or *o* is shouted repeatedly into one ear. If no response is given, a funnel is made of the hands so as to intensify the sound, and the different vowels repeated in a loud voice close to the ear. If still no response, loud notes of the accordion are used to awaken, as it were, the dormant powers of the labyrinth. An interesting experiment by Urbantschitsch may serve as an illustration. The patient was a 22-year-old deaf mute, who, after repeated exercises with the vowels, was able to tell the difference between them with the right ear; the left ear, however, showed only the slightst trace of hearing. He then supplemented the exercise by the use of the accordion as follows: While shouting the vowel *a* in the left ear (worse ear), and, at the same moment, sounding the corresponding note of the accordion in the right ear, an effect upon the auditory apparatus of the left ear was at once apparent. By repeated tests he was convinced that it was not the passing of the sensation upon the right ear to the left, because as soon as the calling of the vowel was discontinued, although the accordion was still being sounded in the right ear, every trace of sensation in the left ear immediately disappeared. From this and other observations Urbantschitsch maintains that auditory sensations, present in the perceiving apparatus of one ear, can excite the acoustic centers of the other; therefore, by making the two ears hear, the better ear may help the worse, but the converse does not hold good, namely, that the worse ear may help the better.

When the ear has been aroused to hear the loud notes of the accordion, and has learned to appreciate the different vowels, the exercise is continued with consonants, then, according to the progress made, with words, phrases, and sentences. Hearing in deaf mutes seems at times to be favorably affected by more or less continuous sound, as is shown by a deaf man who gradually regained his hearing by methodical exercises. This patient told Dr. Urbantschitsch that when he spoke out loud he could not at first hear anything, but after a few minutes of continuous loud talking he could discern, first, letters, then syllables, words, and, finally, whole sentences.

The difficulties met with in this method are numerous. The exercises themselves are apt to become tiresome to the children and monotonous to the teachers. The results are gained very, very slowly, and only after months of constant application for the pupils and with a rare amount of patience on the part of the instructors. On account of these difficulties this system has been confined to institutions for the care and education of deaf mutes. For very small children, still too young to enter such institutions, the nursery should be supplied with a goodly number of wind and stringed musical instruments, music-boxes, bells, etc. For children about three or four years of age a fair supply of picture-books should be on hand, and the daily lesson should be the calling aloud the name of something in the book or around the room, while, at the same time, pointing to the object itself. After six years of age the regular hearing exercises may be systematically carried out. The importance of having intelligent, faithful, patient, persevering teachers cannot be exaggerated. They should engage and keep the interest of their unfortunate pupils in the work, and should

be quick to see just how much exercise an ear can stand, for when the ear becomes fatigued by such exercise the hearing power rapidly diminishes, and the lesson should be immediately interrupted, and not resumed until the next day.

This method of treatment for deaf mutes is not without its opponents. Politzer and others, who have examined the pathological anatomy of such cases, contend that hearing exercises can have no effect upon a labyrinth destroyed almost entirely by a morbid process. Bezold, while appreciating the argument of the opponents, is nevertheless in favor of the method, and claims that it can produce an increase in the perceptive power and a development of those parts of the labyrinth which have remained more or less unaltered by disease. He advocates the hearing exercises only for those deaf mutes who learn to hear sounds after a certain number of exercises, and he thinks that in institutions there should be two groups of pupils—one capable of being taught by this method, and the other to remain under the older methods.

The consensus of opinion among the otologists of the congress was, as far as I could judge, that where the deafness is total or nearly so it is useless to employ the hearing exercises, but that those subjects who possess an appreciable amount of audition should have the hearing exercises, and, as helping agents, the phonograph, and musical instruments which have agreeable tones, such as the piano, organ, accordion, etc.

If we consider the practical value of this method by improving the modulation of the voice, by giving deaf mutes a form of language, by throwing around them a safeguard in their ability to hear sounds of approaching danger, especially in the crowded streets of large cities, and by enabling them to understand spoken language, I think we may with reason consider the adoption of the same system for the benefit of the 41,000 deaf mutes in our own country.

Dr. T. S. Cullen: Section on Gynecology.

In the gynecological section there was not much which was absolutely new. Most of the prominent and best-known representatives from the continental countries were present. The principal papers dealt with the conservative treatment of myomata. They seem to be adopting the conservative plan of myomectomy in place of hysterectomy more and more.

Cancer of the uterus was considered, but the discussion turned principally on the question of treatment. Orth. recommended the vaginal hysterectomy for nearly all cases. It was my pleasure to follow him, and I advocated the abdominal route. When the general discussion was taken up I believe almost all of the ten or twelve speakers expressed a preference for the abdominal route, the belief being that this gave the best results.

Considerable attention was given to the treatment of extrauterine pregnancy. In America this condition is, I think, observed rather earlier than elsewhere, because the general practitioners recognize it more quickly, and in consequence more lives are saved.

In Paris a great deal of study has been devoted to the introduction of cocaine into the spinal column for the production of anesthesia in abdominal operations. I saw a partial removal of a sarcoma, the treatment of an umbilical hernia, and a case of pus tubes, with inflammation of the

uterus, in which a complete hysterectomy was performed under cocaine. The patient talked to the observers during the time of operation. I think the view of the Americans present was that its application should be restricted to those cases in which we dare not give a general anesthetic. We do not know what the after-affects of the use of cocaine may be.

I think the Clinical Society of Maryland may feel that it has been highly complimented in that two of its members, Drs. Osler and Jacobs, were selected as the two executive officers from the United States.

Dr. T. C. Gilchrist: Section on Dermatology.

One feature of the dermatological division was a separate room where many photographs, paintings, models, etc., were shown and stereopticon views of transparencies were given. Several important subjects were put forward for general discussion, and, in accordance with an idea suggested by Brock, a *résumé* of the papers to be read was printed and distributed among the members, so that one could have an idea of the points to be discussed.

The principal subject of discussion, perhaps, was the question, "Is eczema a parasitic disease?" Some years ago an investigator found a certain cocci present in a number of cases, and stated that he could reproduce the disease from these. His views were received with favor by some, with doubt by others, and the result of the discussion at the congress seemed to be that it was not proven as yet that it is a parasitic disease. The monococcus referred to proved to be the epidermidis albus of Welch. The vesicle of eczema is probably sterile.

Another topic of discussion was as to the parasitic nature of alopecia areata. A French observer has thought he had discovered the organism of this disease. Here again, however, the consensus of opinion seemed to be that it is probably a parisitic disease, but the organism is not yet proven.

The next subject discussed was tuberculosis of the skin, not only the varieties in which the presence of the bacillus could be shown, but also those in which there was a strong hereditary history without the demonstrable evidence of the presence of the organism.

An excellent feature of the congress was the regular morning exhibition of patients, fifty or sixty being shown each day. The most prominent feature of the whole congress was a consideration of lupus vulgaris. Fourteen cases were sent down from Copenhagen to show the results of Finsen's treatment, and these results were wonderful; the cosmetic effects were such that in most of them you would not have suspected they had ever had the disease. That sunburn of the skin is due to the ultra-violet rays of light has been proven. Finsen demonstrated that if a tube of muriate of silver be put under the skin of a dog, and rays of light made to penetrate the skin, the silver will be found blackened when removed. It was next learned that if the blood be pressed out of the skin first the rays of light penetrate it much more rapidly—in about one-third of the time. Finsen's method of treatment consists practically in concentrating the sun's rays, minus the heat rays, on the parts, and this is done for an hour every day for from six to twelve months. His apparatus consists of a plano-convex lens of two pieces, the space between being filled with a

solution of ammonium sulphate. A similar apparatus is pressed closely against the part of the body to be treated, to produce anemia, and the tubes attached to this are so arranged as to carry a continuous current of cold water, and thus prevent burning of the skin from overheating of the apparatus. The sun not shining constantly in Copenhagen, Finsen has used the electric light of about 30 amperes, concentrating it by a telescopic arrangement. At the Santorini Hospital I saw them treating cases three or four at a time, and the results were really beautiful.

Book Reviews.

A Treatise on Appendicitis. By John B. Deaver, M.D. Second edition, considerably enlarged. Pp. 300. Philadelphia: P. Blakiston's Son & Co. 1900.

This volume is a vast improvement on the first edition, and is practically a new book. Its value is mostly enhanced by a very thorough and scientific discussion, 120 pages in length, of the pathology and bacteriology of appendicitis by Dr. A. O. J. Kelly of Philadelphia.

Dr. Kelly here publishes complete, for the first time, the results of very careful studies of over 570 appendices removed during the past three years at the German Hospital. To this he has appended a very extended study of the literature, and has produced a work of considerable value.

Based on his pathological studies, acute appendicitis has been classified as (1) catarrhal, (2) interstitial, (3) ulcerative, (4) gangrenous; and the chronic disease into (1) catarrhal, (2) interstitial, and (3) obliterating. A very interesting section is the discussion of catarrhal appendicitis. We would have wished for another term than catarrhal, which is indefinite and otherwise objectionable. The word superficial would be more accurate.

This variety is, however, rare, as Kelly has found it present only nine times in 239 acute cases. The microscopic appearance in the simpler of these cases is that of a serous infiltration of the mucosa, with a swelling of the epithelial cells and an overproduction of mucus within the crypts. In some cases the exudate is purulent in character, and in a few instances small hemorrhages appear in the mucosa.

Analogy and certain facts warrant Kelly in thinking that mild catarrhal appendicitis is more common than is generally thought; that clinical manifestations are often slight or absent, and that in some instances the appendices return to a normal condition. "In the majority of cases, however, in which the lesions are sufficiently intense to give rise to clinical manifestations the return of the appendix to its normal condition is not possible."

The pathology of other varieties of appendicitis is also well handled. Of particular interest are the researches on follicular abscess of the wall of the appendix, which may rupture internally and produce a form of ulcerative appendicitis, or externally and lead to peritonitis, localized or general. An incomplete perforation of this sort will not be accompanied

by an escape of fecal contents into the abdominal cavity unless the abscess also ruptures into the lumen of the appendix.

In contradistinction to catarrhal appendicitis, Kelly holds that the interstitial variety is never followed by a restoration of the organ to its previous healthy condition. Even the milder cases will be followed by connective-tissue changes and other evidences of chronic appendicitis.

Kelly vigorously combats the assertion that many cases of supposed chronic appendicitis show absolutely normal appendices at operation. While admitting that often a few adhesions may be the only evidence of previous disease, and even these may be absent, the microscope will almost invariably show pathological lesions.

Kelly has studied bacteriologically 286 cases of appendicitis. His results show that the bacillus coli communis was present, alone, in 73 per cent. of the acute and in 90 per cent. of the chronic cases. This does not include cases where it was in company with other bacteria (18 and 15 per cent., respectively). Kelly believes that these statistics do not overestimate the importance of the colon bacillus, strengthening his views by copious quotations from the literature showing the great pathogenic power of that bacillus. Kelly's findings are detailed in a very up-to-date nomenclature—a fact which sometimes produces startling sentences as the following:

"Subsequently hyperchromatosis, chromatolysis or karyorrhexis supervenes, and plasmolysis follows coincidentally."

He still teaches very radical measures in all acute cases, not accepting or even discussing the contentions of Richardson that, after the initial period in severe cases, when the appendix is surrounded by weak adhesions and a beginning abscess formation has occurred, it is best to wait. Deaver thinks such a procedure unwise, and that the only contraindication to removal of the appendix in the adult is, intestines so friable that there is danger of rupture, or a collapsed condition of the patient, and avers that *an experienced operator* can and should remove the appendix in all cases.

But a singularly non-radical tone is adopted in regard to general peritonitis. If there is one point on which the surgeons, medical men and all are almost agreed, it is, that the only hope for general peritonitis lies in operative procedures, and the remarkable cures reported by Finney and others certainly justify this position.

Deaver, however, says that ice, a fly-blister at the ensiform, calomel, enemata and stimulants promise much more than operative measures in severe peritonitis. *Quien sabe?* H. H. Y.

The Irrigation Treatment of Gonorrhea: Its Local Complications and Sequelae. By Ferd. C. Valentine, M.D. Illustrated by fifty-seven engravings. New York: William Wood & Co.

The first 125 pages is well written, and had the little volume stopped here we would have had only words of praise.

The object of the first thirty pages is to teach urethral and intravesical

irrigations, with the indications for their use. The apparatus used is unnecessarily complicated and expensive when compared with the simpler, cleaner, less expensive and equally satisfactory ones that can be procured.

A few pages deal briefly and very sensibly with the constitutional and accessory treatment of gonorrhea. Next the complications and sequelae are arranged alphabetically, a short description, cause and treatment of each being given. The great importance of recognizing and treating prostatitis and seminal vesiculitis is duly emphasized.

But when the latter portion of the book is reached, viz., that which deals with chronic gonorrhea, urethroscopy and the proofs of cure, the good opinion formed from the first part is very materially lessened.

He claims that he can tell the site of disease from the character of the epithelial cells found, and not only diagnoses stricture from the condition of these cells and their nuclei, but, on the same grounds, warns a patient of a beginning infiltration.

One-half of the chapter on urethroscopy is given up to a description and the handling of an instrument devised by the author. It is an ingenious, compact article, but not to be compared with the Otis endoscope for efficiency.

The space allotted to urethral dilatation is the only redeeming feature of the last one hundred or so pages. Then follows the worst of all, a chapter headed "The Proofs of Cure of Gonorrhea." But *not one* proof is furnished. The author does not even mention what he considers the proof. We hoped, when our eyes fell on the title of this chapter, that this most perplexing question, and one of vital importance to society, would be discussed in a thorough and comprehensive manner.

W. E. H.

Suggestions to Medical Writers. By George M. Gould, A.M., M.D. Philadelphia: Medical Publishing Co. 1900.

Every workman in medical literature must desire for this book a wide distribution. Most of the "Suggestions" have appeared in the editorial pages of the *Philadelphia Medical Journal*, and their publication, together with other interesting matter in a single volume, is a distinct service to American medical writers.

Probably the fittest man in America for work of this sort is the author of the book. He holds the English language in great esteem, it is in his hands a most obedient medium, and he employs it with great effect, whether for doctrine, for reproof, for correction or for instruction. He is a reformer whose views are perfectly just, but not therefore less irritating to those of us who wish the evolution of the language to wait for us.

This, however, is but one aspect of the man, and this little book may be read with profit by all medical writers save those whom the gods have overgifted.

A Text-Book of the Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D., Professor of the Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia, etc. Fourth edition. Octavo, pp. 1292. Illustrated. Philadelphia and London: W. B. Saunders & Co.

It was but eight months ago that we wrote a criticism of the third edition of this book for the Maryland Medical Journal, in which we called especial attention to the compact, well-arranged character of the work, which we felt would render it of great service to both student and practitioner. That this service has been rendered is shown by the appearance of this, the fourth edition, so shortly after its predecessor.

Naturally but little has occurred during this time to necessitate much rewriting or revision, but additions have been made to the section on Diseases of the Digestive System, the subjects of Ileo-colitis in Children and Acute Cholecystitis have been rewritten, while the advances in therapeutics and diagnosis during the past twelvemonth have been introduced.

B.

Modern Medicine. By Julius Salinger, M.D., Demonstrator of Clinical Medicine, Jefferson Medical College; Chief of Medical Clinic, Jefferson Medical College Hospital; Attending Physician to the Philadelphia Hospital; and Frederick J. Kalteyer, M.D., Assistant Demonstrator of Clinical Medicine, Jefferson Medical College; Pathologist to the Lying-In Charity Hospital, Philadelphia.

In their preface the authors state that it has seemed advisable to combine in one volume the essentials of bacteriology, clinical microscopy and physical diagnosis as applied to clinical medicine, and, with this end in view, they have succeeded well, the arrangement of the volume being good, and the main features of these branches being clearly and tersely put.

The authors also state that, in order to avoid repetition, the bacteriology, clinical microscopy and physical diagnosis of the special topics, which are considered under their respective sections, have been omitted in the discussion of the individual diseases. It would seem to be inadvisable, however, to omit important diagnostic features, such, for example, as the condition of the blood in appendicitis, peritonitis and intestinal obstruction, even though under the section of examination of the blood they had been previously alluded to in general terms.

In the main the expressed aim of the authors to give the salient facts with regard to etiology, pathology, symptomatology, diagnosis, prognosis and treatment has been well carried out, it being manifestly impossible in so small a volume to enter into an exhaustive discussion of any especial topic when so many must be considered.

To students especially, who wish a brief, accurate, modern discussion of each disease, and to busy practitioners as a convenient handbook of reference, the book will undoubtedly be serviceable, and deserves a wide circulation.

It is fortunate for the medical profession that such works as this, and "Modern Surgery," by Da Costa, have come to replace the "Quiz-Compend," which has flourished so long. W. M. D.

Da Costa: Medical Diagnosis. Ninth edition. Philadelphia and London: J. B. Lippincott Company. 1900.

In this, the ninth edition of this valuable work, the author exhaustively discusses the subject in which he has become so deservedly famous—medical diagnosis.

From the vast stores of his knowledge, gained in a lifetime of arduous practice, he has drawn the material for this work, and one instinctively feels, as he reads, that he is listening to a summation of wide experience, deep thought, ever-alert perception and constant recognition of every modern advance as has been combined in but few other men.

The book appeals alike to the practical physician and to the student of medicine, for in it is to be found everything of value to either, expressed in English as fine as it is rare among medical writers. In short, one feels that in this book the world of medicine has a worthy monument of the teacher, the thinker, the friend, the comforter, the man whose recent death has cast a gloom over so many, and that this work—as the life about which it was built—makes us all cry aloud, "Well done, thou good and faithful servant." B.

Bacteriology and Surgical Technique for Nurses. By Emily M. A. Stoney, Superintendent of the Training School for Nurses, St. Anthony's Hospital, Rock Island, Ill. Philadelphia: W. B. Saunders & Co. 1900.

This book begins with a brief but correct account of the history of bacteriology and of the bacteria which cause the usual surgical diseases. The chapters on antiseptics, disinfectants and sterilization are very complete, and give the nurse many important and reliable directions, while the instructions concerning the packing of a surgeon's kit and the list of instruments which are mentioned as necessary for each of the important operations should be of much assistance.

The rules which should govern a nurse's actions, both before and during the administration of a general anesthetic, and a good list of general and local anesthetics, with directions for their use, are found in Chapter VIII. The remaining pages contain many valuable hints for preparing surgical dressings, sutures, sponges, brushes and other operative paraphernalia, and for getting ready the patient, the room and the surgeon. The various positions for the several operations and the after-care and diet of surgical cases are also described.

The book is well illustrated, printed and indexed, and its 190 pages contain much instructive reading for nurses. It should appeal especially to those who are concerned principally in surgical work. W. R. S.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, DECEMBER, 1900.

THE HUMAN SUBJECT IN EXPERIMENTAL MEDICINE.

Experiments upon the lower animals have brought mankind into incalculable debt, and have conferred hardly less benefits upon animals. If human subjects had been as freely employed it is quite likely that human medicine would have made much greater advances, and to certain minds the human sacrifice would appear to have been equally profitable.

That investigators have but seldom resorted to human experiments cannot be because the material is expensive. On the contrary, there are plenty of men who hold themselves, and whom society holds, very cheap. The question of consent is but a slight obstacle. Light bidding will bring the goods to market. Nevertheless there is no demand for an explanation when a profitable research is abruptly halted before the step that leads into the tissues of a reasoning animal.

Very few investigators have taken this step too hastily, and these few have to a surprising extent escaped the criticism of scientific men. The interests of both humanity and science demand the fullest justification of such experiments upon grounds of both right and expediency.

Within two years there have been reported four series of experiments which were both wrong and inexpedient. Not one of them was warranted by previous knowledge or justified by discernible results. One series, relating to scarlet fever, excited comparatively little interest. Another, upon puncture of the spinal canal, gave scientific men very little to talk about, but furnished the "antis" a theme of magnificent expansiveness. These two investigators experimented upon children. They inflicted no lasting injury upon their subjects, but they set the cause of scientific medicine back, and they deserved the fraternal reproof which they probably received.

There are two series of yellow-fever experiments upon human adults. Sanarelli's experiments in South America may be passed by without further criticism, but the recent experiments in Havana upon American soldiers challenge the consideration of American physicians.

Was the experiment timely? Not if the previous evidence was against the theory to be tested. On the other hand, if the evidence favored the theory, in what respect was a test by exposure to infected mosquitoes superior to a test by defense?

Was the experiment in place? Certainly not in or near Havana, where other equally probable causes of this obscure infection could not be, and were not, excluded.

At the right time and place, would the experiments have been permissible? Yes, if enlisted men and staff officers can serve their country and science at the same time in this manner. It may be that military

discipline allows to soldiers this untrammeled license to give and get yellow fever.

The experiments were permissible; if the lay mind can appreciate the significance of consent to be inoculated with yellow fever; if it is right for a trained mind to influence an untrained mind toward such a consent; if it is right to proceed upon the consent of an untrained mind, however fairly obtained. All these propositions are more than doubtful.

The experiments were permissible if they offered the safest and surest test of the theory; which they did not. The negative test, by protecting both sick and well from the mosquito, would have been more humane, more practical, and, in an epidemic area, more convincing than any number of positive experiments could be, and might have included just such positive proof as would have rendered the inoculation test superfluous.

The experiment of defense was a necessary step toward the crucial test. It was omitted in incontinent and unscientific haste.

WIND-BORNE TYPHOID FEVER.

Interesting observations have recently been reported from India and from South Africa upon the relations between windstorms and the prevalence of typhoid fever among British troops.

H. H. Tooth (*British Medical Journal*, November 10) doubts whether the water of Modder river was a considerable factor in the causation of typhoid fever. Small whirlwinds, known as "devils," are quite frequent, he says, carrying dust and light objects for long distances. It would, according to his account, be impossible to exclude the dust from a well-built house, and the food during his stay at Modder river was never free from grit. At Bloemfontein, also, he was impressed with the belief that the windstorms and the flies were more concerned than the drinking water in the spread of typhoid.

An editorial in the same journal (p. 1392) gives a brief account of an outbreak at Quetta in India. The water supply here is beyond suspicion, coming from a sequestered spot in the mountains, thirteen miles away.

The night-soil is deposited in pits to the northwest of the cantonment. From January to May there occurred but two cases of typhoid. From May 2 to 13 the usual duststorms prevailed, the wind coming from the northwest. An epidemic of sore throat appeared, followed promptly by an outbreak of typhoid fever. The infection fell most heavily upon the barracks nearest to the soil pits. In the three bungalows nearest to the pits there were thirty-six cases, but in three similar bungalows, 800 yards farther from the pits, there were six cases. The occurrence of sore throats in many of these cases seems to indicate a direct infection by dust through the mouth and nose.

It is said that an examination of the seasonal distribution of the disease in India shows the month of maximum prevalence to be "dry, hot, dusty May."

In all the important stations of Bengal, the Northwest Provinces, and the greater part of the Punjab, it is found that the four wet months from mid-June to mid-October (July to November) yielded, in 1898, twenty-one cases per month, while the average monthly incidence for the remaining eight months was eighty-four cases. The winter rains of January and

February were followed by a slight decrease in the morbidity for February and March.

Concerning the conveyance of typhoid fever in dust, one of the writers says that it is "beyond human control," and the other regards the safeguarding of food and water from infection by dust as "a very difficult task."

To prevent the distribution of infected dust would indeed seem a superhuman task, but the effort to control the conversion of typhoid excreta into infectious dust would not seem quite hopeless, even where surface disposal is of necessity practiced. The problem begins at the bedside, and, though difficult, is not insoluble.

PLAGUE AT SAN FRANCISCO.

THE twenty-first fatal case of plague in San Francisco is in some respects the most interesting one in the series. A report of this case appears in the *Journal of the American Medical Association*, November 17, 1900. We are not given the name or race of the patient, but she seems to have been a white girl, twenty-eight years of age, and a nurse. She was for five hours in attendance at the death-bed of a young man who had been under treatment for typhoid fever for a week. Six hours before his death, on October 22, the diagnosis was changed, and the cause of death assigned in the death certificate was nasal diphtheria. The nurse received an injection of antitoxin.

On October 31 she went to a hospital, having fever, and pain all over the body. She refused to give any history of the interval between October 22 and 31. By November 2 axillary buboes were well developed. On the 3d there was blood in the urine and in the expectoration, and she died early on the morning of November 4.

The diagnosis of plague was fully confirmed by direct preparations, by culture, and by animal inoculations. The body of the young man whom this girl nursed and who was certified to have died of diphtheria was exhumed for examination. The circumstances of this latter examination are, of course, quite unpromising.

In the history of this case a feature of evil omen is the refusal of the nurse to account for the eight days preceding her admission to the hospital. All the cases of plague recognized in San Francisco have been fatal cases, and not more than two or three of them were discovered by the authorities during life. Twenty-one deaths must indicate something like a hundred cases of plague. Kinyoun, reporting to Surgeon-General Wyman, says that these twenty-one cases cover the whole of Chinatown except three blocks.

DR. BROWN'S ARTICLE ON HEMATOLOGY.

A PARTICULARLY serviceable contribution to medical literature begins in the present issue of the MARYLAND MEDICAL JOURNAL. The article on "The Physiology and Pathology of the Blood," by Dr. Thomas R. Brown, will be completed in three or, perhaps, four instalments, and will include every important contribution to hematology during the past two years, except those relating to serum therapy, serum diagnosis, and the blood parasites. These subjects will probably be as fully treated somewhat later

Medical Items.

Dr. Lawrence Turnbull died at Philadelphia on October 24, aged seventy-nine years.

Dr. Horace T. Hanks, the well-known gynecologist, died in New York on November 18.

Dr. Edward Robinson Squibb of Brooklyn died on October 26 at the age of eighty-one years.

Dr. Frank Martin has been elected president of the Journal Club, and Dr. John C. Hemmeter, secretary.

Dr. Nicholas Senn has given $50,000 to Rush Medical College for the expenses of a new building to be known as Senn Hall.

There are several cases of smallpox in Prince George county, all traceable to a colored preacher who came from Washington about the middle of July.

"Divine Dowie" attempted to outwit the United States authorities by sending some lace-workers across from England as first-class passengers. They were not permitted to land.

At the annual meeting of the Maryland Ophthalmological and Otological Society on October 28 Dr. Hiram Woods was elected president, and Dr. H. O. Reik, secretary-treasurer.

The College of Physicians and Surgeons of Illinois has received two large gifts from members of its faculty. Dr. Wm. E. Quine gives $25,000 to endow a library, and Dr. D. A. K. Steele $25,000 to endow a pathological laboratory.

A milkman, named Ayers, has been held to await the action of the grand jury upon a charge of selling adulterated milk in Elkton. It was upon the route of this milkman that almost every case of typhoid fever occurred in the recent large outbreak at Elkton.

The State Dental Association urges the importance of examining the teeth of children in the public schools, and proposes a plan somewhat similar to that of the ophthalmologists for examining the eyes of school children. The suggestion will be considered by the School Board.

The Supreme Court of Michigan has decided that the order of the State Board of Health requiring physicians to notify cases of tuberculosis must be obeyed. A well-known physician of Detroit was acquitted by the lower court of a charge of failure to report tuberculosis. The case now goes back to the lower court for retrial.

A destitute young man suffering with diphtheria applied at the Health Department recently for relief. He had been turned out of his lodging-house, and no hospital would receive him. He was cared for in a vacant room at the City Hall Annex. He died on November 17. Another illustration of the crying need of a municipal hospital for infectious diseases.

At the annual meeting of the Clinical Society Dr. Wm. J. Todd was elected president; Dr. Henry Barton Jacobs, vice-president; Dr. H. O. Reik, recording secretary; Dr. Nathan Herman, corresponding secretary; Dr. J. Frank Crouch, treasurer; Drs. H. B. Jacobs, W. S. Gardner and T. C. Gilchrist, executive committee. Dr. Jas. M. Craighill was elected to the finance committee. Dr. Wm. Osler gave an interesting account of the centennial celebration of the Royal College of Surgeons of England. At the close of the meeting there was a "smoker."

The semi-annual meeting of the Maryland Public Health Association will be held in the hall of the Medical and Chirurgical Faculty on December 4 and 5. Among the papers to be read are: "Municipal Control of Slaughter-Houses and Meat Inspection by Competent Veterinarians and Microscopists," by Dr. J. C. Hemmeter; "Observations on the Slaughter-Houses In and Near Baltimore, Illustrating the Need of Systematic Inspection," by Dr. José L. Hirsh; "The Perils of Culture," by Dr. A. K. Bond; "The Water Supply of Baltimore City and Its Pollutions," by Dr. Chas. O'Donovan; "Nuisances and Sources of Danger on the Water-Shed," by Mr. Alfred M. Quick, city water engineer; "The Duty of the State in Respect to Tuberculosis," by Dr. Joseph E. Gichner; "The Powers and Duties of Local Boards of Health," by Mr. James U. Dennis, Jr. A great many lay members of local boards of health will be present, besides the local health officers. Many questions relating to administration of the sanitary laws will be discussed.

The Faculty Club of the University of Pennsylvania entertained Dr. Wm. Osler at a reception on November 15.

A fire occurred November 15 in the main building of the Veterinary College, Cornell University, causing damage to the extent of $30,000.

The Philadelphia County Medical Society has adopted resolutions favoring the registration of tuberculosis. The resolutions have been submitted to the health authorities.

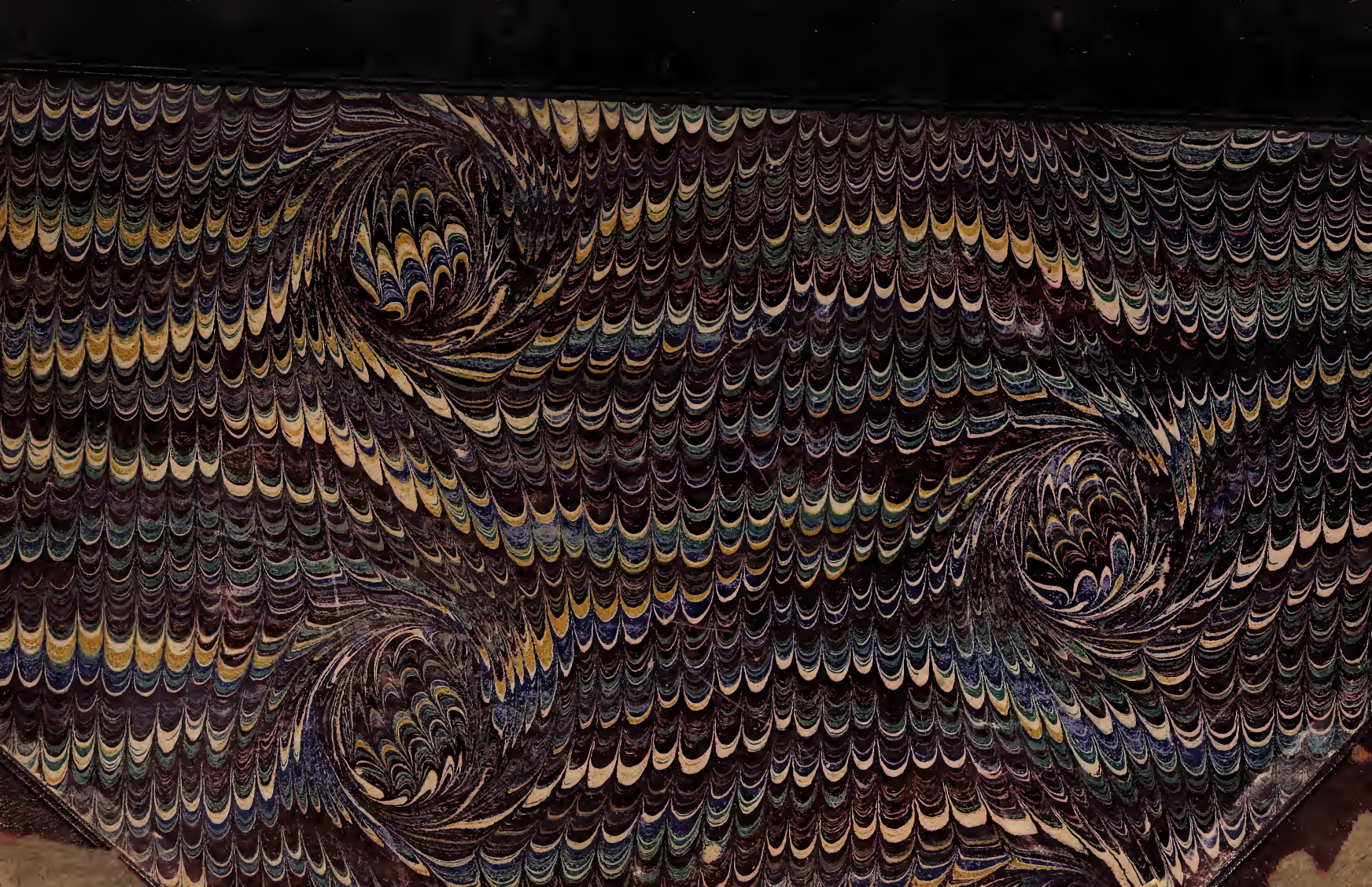
The Health Department of New York offers the Pasteur treatment free to citizens who are certified by their physicians to be unable to pay for it. The treatment will be carried out at Willard Parker Hospital.

At the meeting of the Johns Hopkins Historical Society on November 12 Dr. Wm. Osler read a paper on "The Sympathetic Powder of Sir Kenelin Digby," and Dr. Eugene Cordell a paper on "The Medicine and Doctors of Horace."

A riot occurred at Omaha Medical School on November 15. Two students were seriously injured; one may die. The fight between medical and dental students began with fists. A railing was demolished and the balusters used as weapons.

An item from Chicago says that the opening of the great drainage canal has given every city along the Illinois river and the Mississippi as far as St. Louis purer water than any of them ever had before. And yet Washington growls about Cumberland.

In Cementon, Pa., out of 200 families 118 have typhoid fever. In twenty-two families every member is said to be down with the disease. It is doubtful if any town in the country could show such a great proportion of susceptible individuals as these figures would indicate.

The first meeting of the Book and Journal Club occurred on Wednesday evening, November 21, when Dr. John Collins Warren of Boston gave a delightful talk on "Some Reminiscences of an Old New England Surgeon." We shall have the pleasure of printing this interesting account of the early days of surgery in this country. Dr. Warren was one of the four American surgeons who were made honorary fellows at the recent centennial celebration of the Royal College of Surgeons of England. The programme of the Book and Journal Club for the winter includes papers by Prof. W. K. Brooks on "Harvey as an Embryologist," December 19; Dr. Robert W. Fletcher of Washington on "Some Diseases Bearing Names of Saints," February 20; Dr. Fred. P. Henry of Philadelphia on "The Life and Writings of Valescus de Tarenta," March 20.

The semi-annual meeting of the Medical and Chirurgical Faculty of Maryland at Towson on November 20 was largely attended. The Baltimore County Medical Association entertained the Faculty at lunch in Grange Hall. Dr. H. Benton Stevenson welcomed the Faculty on the part of the Baltimore County Association, of which he is president. Dr. Samuel Theobald responded for the Faculty. At the morning session the following papers were read: "The German Clinics of Today," Dr. John C. Hemmeter; "A Modification of the Bottini Operation for Prostatic Hypertrophy, with Report of Cases," Dr. H. H. Young; "Blindness and Death from Drinking Jamaica Ginger, etc., Adulterated with Wood Alcohol," Dr. Herbert Harlan and Dr. H. A. B. Dunning, Ph.G.; "Gunshot Wound of Abdomen, Perforation of Liver, Gall Baldder, Large and Small Intestines—Operation and Recovery," Dr. Frank Martin; "A Case of Cholelithiasis Showing Pure Culture of Typhoid Bacillus Without Antecedent Typhoid Fever," Dr. Chas. W. Mitchell; "An Account of the Present Milk Epidemic of Typhoid Fever at Elkton," Dr. Chas. M. Ellis; "A Contribution to the Study of Measles," Dr. Edgar Strobel; "What Is Insanity?" Dr. Stewart Paton. At the afternoon session the following papers were read: "A Method of Demonstrating Large Brain Sections," Dr. C. B. Farrar; "Report of a Case of Dementia Precox," Dr. Wm. R. Dunton, Jr.; "On a New Method of Exenteration of the Orbit for Malignant Disease, with Remarks on the Use of the Thiersch Skin Flaps Upon Bone Denuded of Its Periosteum—Exhibition of a Case," Dr. Harry Friedenwald; "Surgical Indication in Purulent Ear Disease," Dr. A. D. McConachie; "The Importance of the Eye Reflexes to the General Practitioner," Dr. H. M. Thomas; "Leucocytosis in Acute Abdominal Lesions," Dr. Jos. C. Bloodgood; "Defects in Vision Due to Onanism," Dr. Edward J. Bernstein; "Craniotomy on the Living Fetus Absolutely Unjustifiable," Dr. Henry F. Cassidy.